DEVOTED TO
TEXTILE CHEMISTRY
AND
WET-PROCESSING
BLEACHING
DYEING
PRINTING
FINISHING

APRIL 18, 1949
VOLUME 38, No. 8

AMERICAN

DYESTUFF REPORTER

Knitting Arts Exhibition Number

OFFICIAL PUBLICATION
of the
PROCEEDINGS
AMERICAN ASSOCIATION
OF TEXTILE CHEMISTS
AND COLORISTS

CHROMACYL
TRADE MARK
YELLOW GR

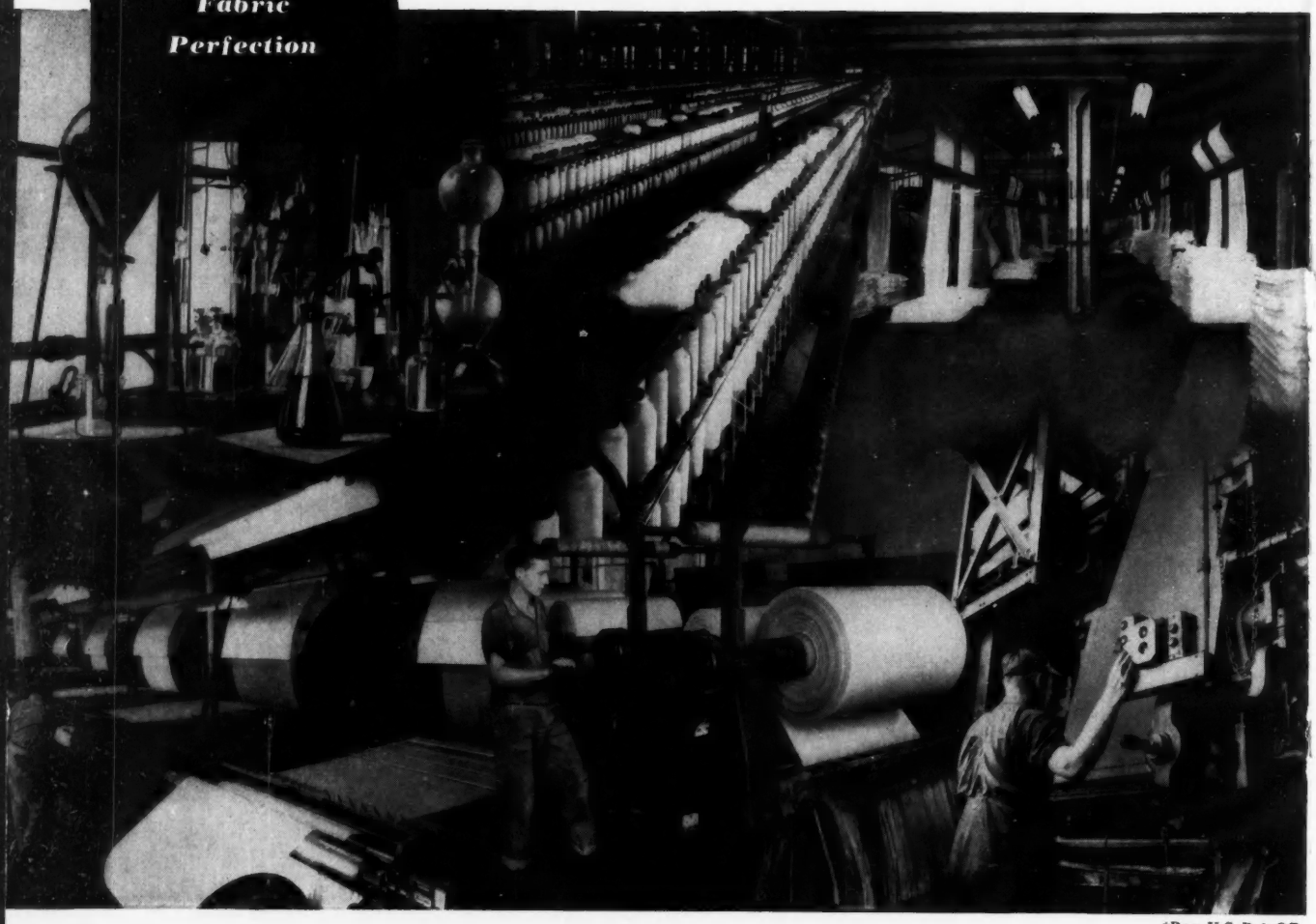
A special acid dyestuff . . . recommended for a range of fast-to-light reddish-yellows. Very good resistance to hot moist pressing, dry cleaning, salt-water spotting. Good fastness to washing, fulling and perspiration. Can be applied by the usual methods in conventional dyeing machines. Good shading color . . . level dyeing . . . excellent transfer at the boil . . . penetrates and exhausts well.

"Chromacyl" Yellow GR is especially useful for dyeing woolens, worsteds and knitting yarns. For additional information, consult our Technical Staff, E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Div., Wilmington 98, Del.

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

CHEMICAL
RESEARCH
for
Fabric
Perfection



*Reg. U.S. Pat. Off.

WARCOSOL*

Warcosol fulfills the textile need for instantaneous and even wetting. Three types are available in keeping with Warwick's principle of developing the most efficient and economical answer for every specific problem. Warwick technical advisors will gladly work with you in determining the correct Warcosol for your needs.

WARWICK CHEMICAL DIVISION
10th Street and 44th Avenue, Long Island City, New York

Sun CHEMICAL CORPORATION

Pat. Off.

Latest Additions

AMANTHRENE* VAT COLORS
provide the answer to the demand for
better color fastness in textiles

Amanthrene

SCARLET G paste

ORANGE R paste

PINK FF paste†

Vat printing colors of distinction.
Their delicate, brilliant shades satisfy
the most exacting specifications.

Without a peer for the printing of fine cotton
and rayon dress goods and draperies, as self colors or
in combinations. Equally suitable for dyeing
the same fibres. Offering the particular advantages
of fine, smooth pastes.

Just three of the Amanthrene range of superior vat colors.
For detailed information on the whole range available, as well as
data regarding your own particular requirements,
consult our nearest branch. A.A.P. technicians are always
happy to be of service.

†Also available in double powder form

AMERICAN ANILINE PRODUCTS, INC.

50 Union Square, New York, N. Y. • **Plant: Lock Haven, Pa.** • **Branches:** Boston, Mass.
Providence, R. I. • Philadelphia, Pa. • Charlotte, N. C. • Chicago, Ill. • Los Angeles, Cal.
Chattanooga, Tenn. • **Dominion Anilines & Chemicals Ltd.** • Toronto, Canada • Montreal, Canada

*Reg. U.S. Pat. Off.

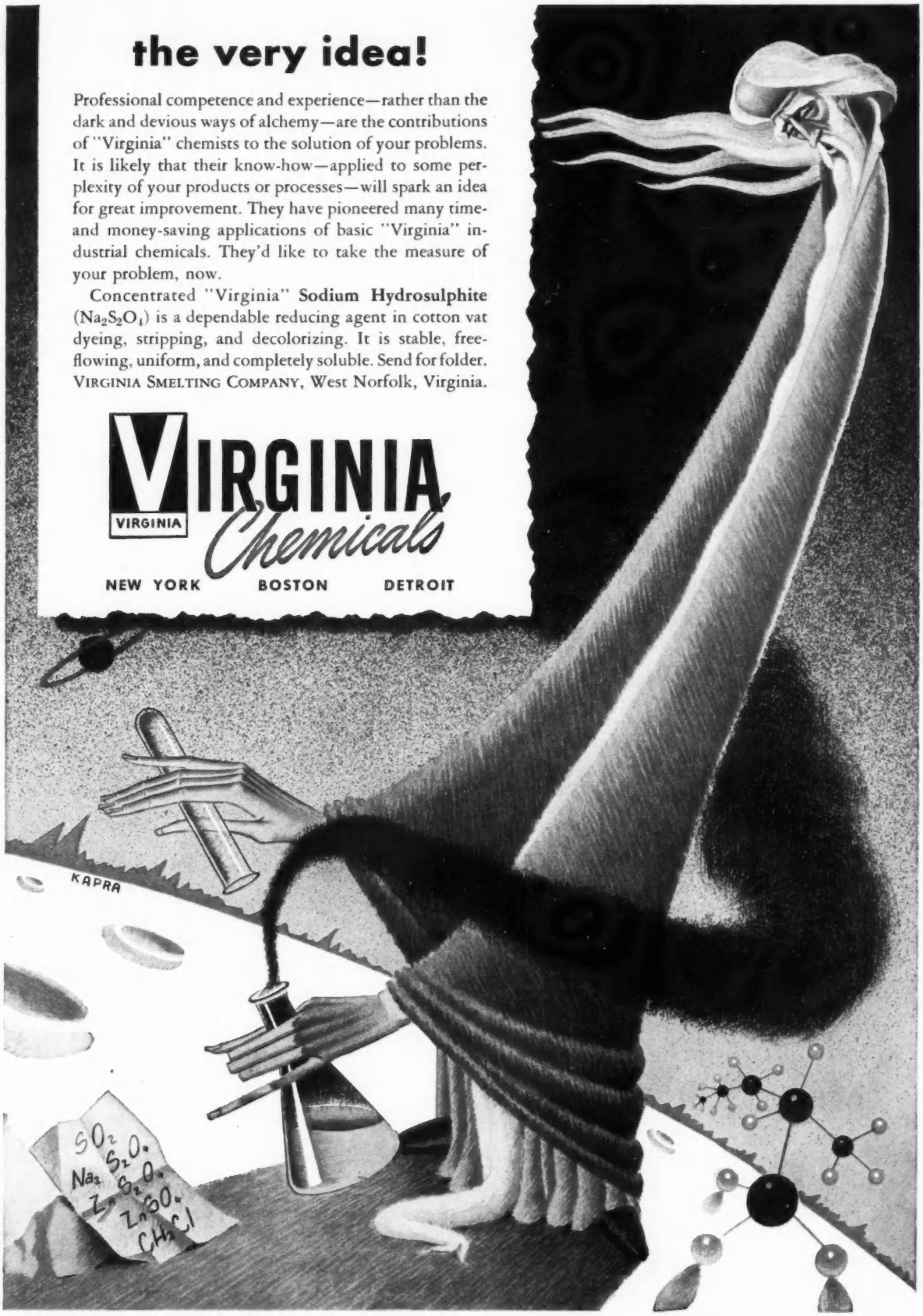
the very idea!

Professional competence and experience—rather than the dark and devious ways of alchemy—are the contributions of "Virginia" chemists to the solution of your problems. It is likely that their know-how—applied to some perplexity of your products or processes—will spark an idea for great improvement. They have pioneered many time- and money-saving applications of basic "Virginia" industrial chemicals. They'd like to take the measure of your problem, now.

Concentrated "Virginia" **Sodium Hydrosulphite** ($Na_2S_2O_4$) is a dependable reducing agent in cotton vat dyeing, stripping, and decolorizing. It is stable, free-flowing, uniform, and completely soluble. Send for folder. VIRGINIA SMELTING COMPANY, West Norfolk, Virginia.

VIRGINIA *Chemicals*

NEW YORK BOSTON DETROIT



American Dyestuff Reporter, Vol. 38, No. 8. April 18, 1949. Published every other Monday. Copyright 1949, by Howes Publishing Co., Inc., One Madison Ave., New York 10, N. Y. Domestic subscription, $5.00; Canadian, $6.00. Foreign, $10.00. Entered as second-class matter, Nov. 6, 1919, at the New York, N. Y., Post Office, under the act of March 3, 1879.

FROM COTTON PRINTS
TO RUN-PROOF NYLONS

Nothing takes the place of Glycerine

Glycerine is as useful today in new applications (run-proof nylons is just one example) as it always has been in the manufacture of cotton prints and other familiar products of the textile industry.

As a standard ingredient of printing pastes and spray dyeing solutions, glycerine acts as a suspending agent, a thickener, a dispersant, a penetrating agent, a humectant. As a chemical intermediate, it is essential in the preparation of those alkyd resins which are making possible today's crease-and-laundry-resistant fabrics, non-snag nylons.

And . . . glycerine is a softener, a plasticizer, a solvent — a chemical whose versatility . . . dependability . . . can be matched by no other product. That's why in the textile industry — or in almost any industry — *Nothing takes the place of glycerine!*

GLYCERINE PRODUCERS' ASSOCIATION
295 Madison Avenue
NEW YORK 17, NEW YORK

Technical GLYCERINE NEWS

COATED FABRICS SLATED FOR ARMY. Increasing need of plastic materials for ordnance was stressed by government technicians recently. Among major items cited for immediate use were coated fabrics, many of which are made with alkyd resins that represent an important end use of glycerine. (T-1)

★ ★ ★

TAKES BRITTLENESS OUT. Fabrics which are brittle and lack fats can now be treated by machine with glycerine. The treatment removes brittleness, increases wearability, and improves the feel of the goods. (T-2)

★ ★ ★

GLYCEROL VISCOSITIES TABLE AVAILABLE. Miner Laboratories, headquarters for the Glycerine Producers' Association program of glycerine research, has prepared a table of viscosities of glycerol in aqueous solution from 0 to 100 per cent, at from 0 to 100 degrees C. To obtain your copy, check T-3 on the coupon below. (T-3)

★ ★ ★

NEW HIGH TENACITY YARNS. Yarns described as having a tenacity of 4-6 grams per dernier, and an elongation of 18 to 20 per cent, can now be made from acrylonitrile polymers, it was revealed recently. In the manufacture of fibers from the already polymerized raw material, glycerine is reported to play an important role. (T-4)

★ ★ ★

BETTER LAUNDERING. To improve the appearance of laundered fabrics, a new glycerine-containing preparation has been developed which is said to be effective when added to the final rinse water or to the starch bath. (T-5)

★ ★ ★

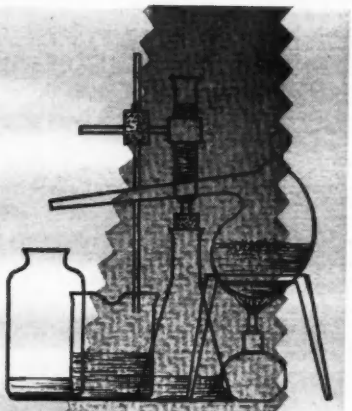
PLANT SAFETY HINT. If your workers use safety goggles, glycerine is a must. It's one of the best anti-fogging agents — and it's a good lens cleaner, too.

GLYCERINE PRODUCERS' ASSOCIATION, DEPT. 13
295 MADISON AVENUE
NEW YORK 17, N. Y.

I should like to receive information on the source of the items appearing in **Technical Glycerine News**. I have checked below those items which interest me.

☐ T-1 ☐ T-2 ☐ T-3 ☐ T-4 ☐ T-5

NAME .....
COMPANY .....
ADDRESS .....



REPCOLENE
K-50 ..... applicable to all fabrics

REPCOLENE K-50 has a wide field of application as a penetrating—scouring—wetting—leveling, dispersing agent

STABLE IN HARD WATER—COMPATIBLE WITH SOAP

REPCOLENE K-50 has great softening action on animal and vegetable fibres.

REPCOLENE K-50 is economical as it greatly reduces the amount of finishing compound required after scouring and dyeing operations

WRITE FOR COMPLETE INFORMATION SHEET

REFINED PRODUCTS CORPORATION

Manufacturing Chemists • LYNDHURST • NEW JERSEY

* Manufacturers of PERMA-CIDE, the approved, outstanding, mildew-proofing agent

Southern Representative: DYER S. MOSS, 1301 Liberty Life Bldg., Charlotte, North Carolina

New England Representatives: E. L. LEGG, 8 Harding Ave., Providence, R. I.
CLARENCE E. MOSS, 19 Wilson Ave., Rumford (16), R. I.

California Representative: SIDNEY SPRINGER, 2300 S. Vermont Ave., Los Angeles 7, California

Canadian Selling Agents: Berkeley Products Canada, Ltd., 41 Hillcrest Ave., St. Catharines, Ontario, Canada

Exporting Agent: Chem-Col Company, 82 Wall St., New York City

AND NOW!

The Finest Oleic Acid

Available Commercially

EMERSOL 233 LL* ELAINE
Linoleic & Other Polyunsaturated acids.....less than 4%
Monounsaturated acids.....over 90%
Saturated acids.....less than 5%
*LL, low-linoleic content

The new unique Emersol 233 LL Elaine† is *unlike* any oleic acid (red oil) you have ever used. Commercial production shows less than 4% polyunsaturates (regular grades from 2.5 to 4 times as much). Check these other advantages:

- Highest color and heat stability of any commercial oleic acid.
- Greater resistance to oxidation and rancidity. Mackay tests show no significant increase in temperature after 7 hours. (This compares with other grades of Emersol Elaine which hold for 2 to 3 hours, and competitive red oils where time seldom exceeds 1 hour.)
- Bland odor . . . superior odor stability.
- Color almost water-white.
- End products exhibit unusual characteristics . . . improved initial color and odor, greater heat and odor stability.

Recommended for manufacture of purer esters (oleates), pharmaceuticals, odorless shampoos, improved dry cleaning, liquid and specialty soaps, textile specialties. Write for full information and complete specifications.

†Elaine, T.M. Reg. U. S. Pat. Off. describes all grades of oleic acid manufactured by Emery Industries, Inc.

EMERY INDUSTRIES, INC.

4300 CAREW TOWER, CINCINNATI 2, OHIO • *Export Dept.:* 5035 R.C.A. Bldg., New York 20, N. Y.

3002 Woolworth Building, NEW YORK 7, N. Y. | 187 Perry Street, LOWELL, MASS. | 401 North Broad Street, PHILADELPHIA 8, PA.

Representatives:

CLARENCE MORGAN, INC., 919 N. Michigan Ave., Chicago 11, Ill.
SCHIBLEY & OSSMAN, 33 Public Square, Cleveland 13, Ohio
ECCLESTONE CHEMICAL CO., 2673 Guoin, Detroit 7, Mich.
H. H. LOOMIS, 369 Pine Street, San Francisco, Cal.

STEARIC ACID • OLEIC ACID • ANIMAL AND VEGETABLE FATTY ACIDS • TWITCHELL PRODUCTS • PLASTICIZERS

Say

Nacconol* NR

AMERICA'S LEADING SYNTHETIC DETERGENT

WASHES · WETS · DISPERSES · FOAMS · EMULSIFIES IN HOT OR COLD SOLUTIONS AT ANY pH

get

40% active organic content

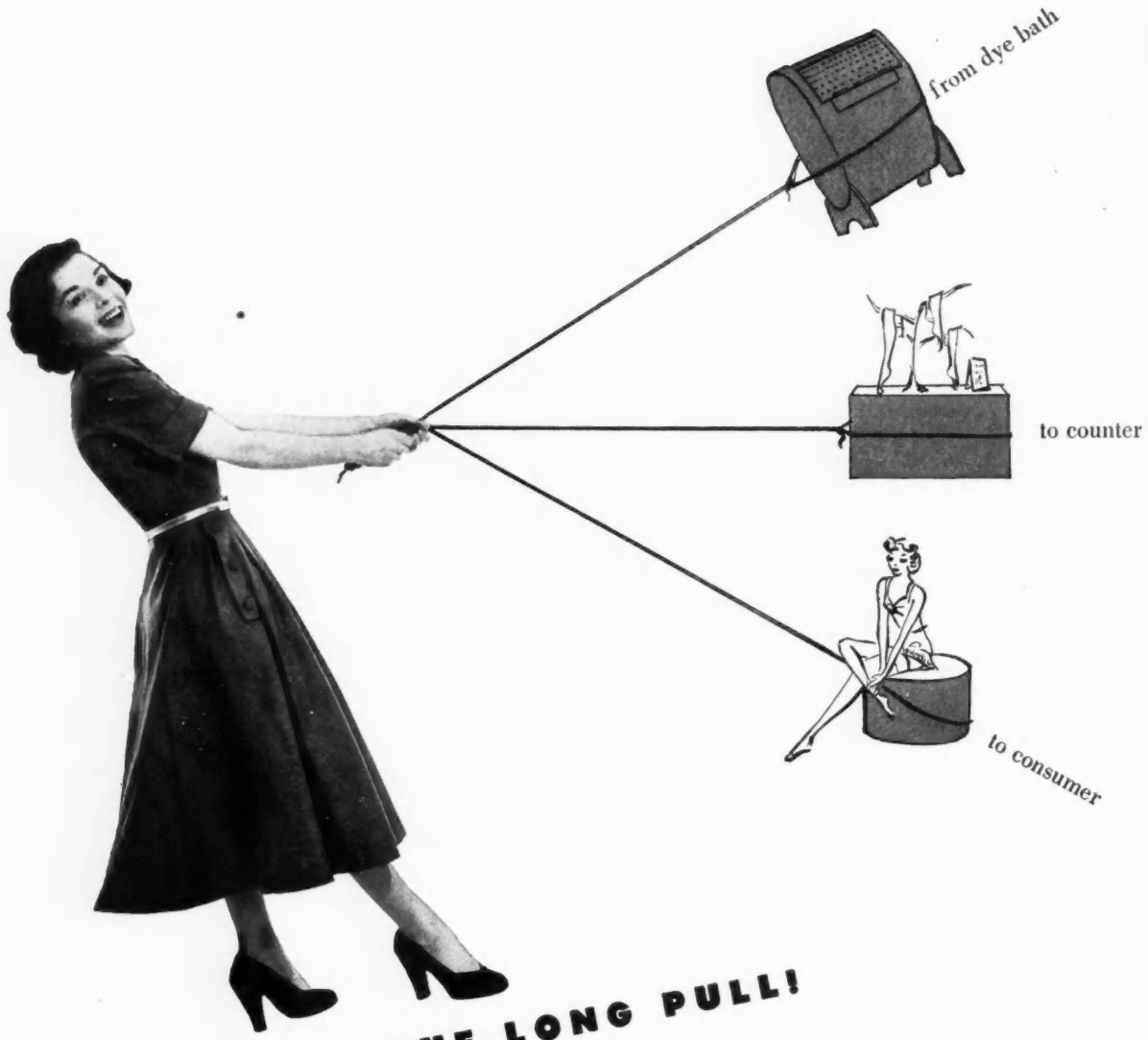
GUARANTEED

NATIONAL ANILINE DIVISION ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N. Y. (BOwling Green 9-2240)

Boston, Mass., 150 Causeway St.	Capitol 0490	Greensboro, N. C., Jefferson Standard Bldg.	Greensboro 2-2518
Providence, R. I., 15 Westminster St.	Dexter 3008	Atlanta 2, Ga., 140 Peachtree St.	Cypress 2821
Chicago 10, Ill., 357 West Erie St.	SUperior 7-3387	Chattanooga 2, Tenn., James Building	Chattanooga 6-6347
Philadelphia 6, Pa., 200-204 S. Front St.	LOmbard 3-6382	New Orleans, La., Cotton Exchange Bldg.	Raymond 7228
San Francisco, Cal., 517 Howard St.	Sutter 7507	Portland 9, Ore., 730 West Burnside Ave.	Beacon 1853
Charlotte 1, N. C., 201-203 West First St.	CHarlotte 3-9221	Toronto, Canada, 137-145 Wellington St. W.	Elgin 6495

*Reg. U. S. Pat. Off.



GOOD FOR THE LONG PULL!

. . . Fanco finishes seal in the beauty of fine knitting . . . protect it throughout its lifetime. Yes, no matter the denier you run, the hand you desire, the boarding system you use or the special properties that you want for your hosiery . . . Fanco finishes will give them to you accurately and continuously. Your Fanco fieldman will gladly prove this with a no-obligation, on-the-spot test.

W. F. FANCOURT CO.
Philadelphia, Pa.
In the South,
Howard A. Virkler, Greensboro, N. C.

See Nylon Products Dulled with Ny-Dull
Visit Booths 371-372, Knitting Arts Exhibit

SOLVING FINISHING PROBLEMS SINCE 1904

Better two ways—

for Quality...
for Economy—

use "AVITONE" fiber softener

Looking for a superior softening agent for cottons or synthetics?

Of course, you want the finest quality! "Avitone" does not turn rancid or discolor on aging. It is stable to hard water, easy to apply, improves the appearance, "hand" and sales appeal of fabric. "Avitone" helps cut down on seconds in sewing—lubricates fibers, allows needle to slide through fabric without breaking threads. And its wetting action facilitates the "Sanforized" process.

Of course, you want economy! In contrast with most other products, the price of "Avitone" is the same as before the war. That means "Avitone" offers you real savings.

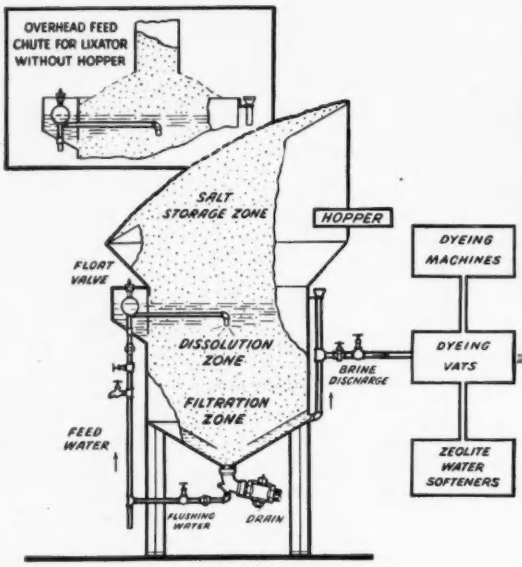
Increased production facilities now make "Avitone" immediately available. For further information, check with Fine Chemicals Division, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware. Branch offices: Atlanta, Boston, Charlotte, Chicago, New York, Philadelphia, Providence, San Francisco.

AVITONE TRADE MARK *Fiber Softener*

DU PONT

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

The LIXATE pipe line to efficient brine distribution



THE LIXATOR *automatically* provides 100% saturated crystal-clear, self-filtered brine that can be piped, by gravity or pump, anywhere . . . at any distance . . . it is needed in your plant.

HOW THE LIXATOR WORKS

In the dissolution zone—Flowing through a bed of Sterling Rock Salt which is continuously replenished by gravity feed. water dissolves salt to form 100% saturated brine. In the filtration zone—through the use of the self-filtration principle originated by International, the saturated brine is thoroughly filtered through a bed of undissolved rock salt. The rock salt itself filters the brine. Nothing else is needed.

JUST TURN A VALVE for Lixate Brine that meets the most exacting standards for chemical and bacterial purity . . . that can be diluted volumetrically to any desired strength.

THE LIXATE PROCESS for Making Brine cuts production costs as high as 20% . . . by cutting labor, time and waste in making brine. No hauling, measuring, stirring . . . YET ALWAYS a continuous supply of *accurately measured* brine.

Consult our Technical Service Department on your use of salt and brine. The experienced men on this staff will advise you on the proper location for Lixator and salt storage, pumping arrangements, types of pumps, meters, and valves. They will fit the *money-saving* Lixator into your plant operations. Write today!

NOW AVAILABLE

The New Stainless Steel
STERLING MODEL LIXATOR
For "Lifetime" Use
For Greater Economy
For Added Cleanliness

The **LIXATE** *Process*
REG. U. S. PAT. OFF.
for making brine
INTERNATIONAL SALT COMPANY, INC.
Scranton, Pa.

IGEPALS

outstanding non-ionic surface active agents for wool, cotton and synthetic fibers.

- Excellent wetting, emulsifying and scouring properties
- Quick rinsing
- Readily soluble at all temperatures
- Equally effective in hard or soft water
- Neutral reaction
- Resistant to acids and alkalis
- Non-electrolyte—non-reactive
- Compatible with anionic and cationic compounds

Our skilled technicians are available for plant demonstrations.

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET, NEW YORK 14, NEW YORK

BOSTON · CHARLOTTE · CHICAGO · PHILADELPHIA · PROVIDENCE · SAN FRANCISCO

How NOPCO* FUA

cuts your wool processing costs

3% **OF NOPCO FUA**

applied to stock is all you need—3 lbs. NOPCO FUA per 100 lbs. wool—as against

8% **OF CONVENTIONAL WOOL OILS**

This tremendous differential is only one of the reasons why this initially *higher priced* product is proving the *most economical* of all wool oils in actual performance. Other reasons are

100% **ELIMINATION OF SOAP**

NOPCO FUA *eliminates the need for all soaps and detergents* in fulling and scouring. It also stops static completely during carding. It does not rust or corrode. NOPCO FUA is anhydrous, all fatty, contains no mineral oil or hydrocarbons—is salt free and ash free.

What these percentages mean to YOU

They mean . . . increased production quality and volume, valuable savings of time and equipment, reduced cost of *all* operations. Try NOPCO FUA in your mill. Give your woolens the benefit of its many exclusive advantages, its unparalleled versatility.

NOPCO — EVOLVED THRU RESEARCH

SEND FOR NOPCO FUA TECHNICAL BULLETIN

Mail coupon today and get *all* the facts about NOPCO FUA's versatile aid to better wool processing.

NOPCO CHEMICAL COMPANY. Harrison, New Jersey

Formerly National Oil Products Company

BRANCHES: BOSTON • CHICAGO • CEDARTOWN, GA. • RICHMOND, CALIF

*Reg. U. S. Pat. Off.

NOPCO FUA

SELF-FULLING SELF-SCOURING WOOL OIL

MAIL TODAY

NOPCO CHEMICAL COMPANY
Harrison, New Jersey **(Dept. 23)**

Please send, without obligation, your NOPCO FUA Technical Bulletin.

FIRM NAME_____

STREET ADDRESS_____

CITY AND ZONE_____ STATE_____

SENDER'S NAME_____

S

8, 1949

here is the fastest vat yellow of true shade

for dyeing — **Calcosol* Fast Yellow Paste**
Calcoloid* Fast Yellow Double Powder

for printing — **Calcosol Fast Yellow Printing Paste**

Calco now offers a new Vat Yellow with over-all outstanding fastness properties. It comes in two forms for dyeing: paste and powder. For printing, this color is available as Calcosol Fast Yellow Printing Paste.

CALCOSOL FAST YELLOW PASTE, a new vat dye of the anthraquinone class, produces a clear, bright, true yellow which will withstand long light exposure *even in pastel shades*. It excels all other bright vat yellows in fastness to light, chlorine, towel bleach and washing — hence it is excellent for dress goods, towels, draperies, sheets and similar applications.

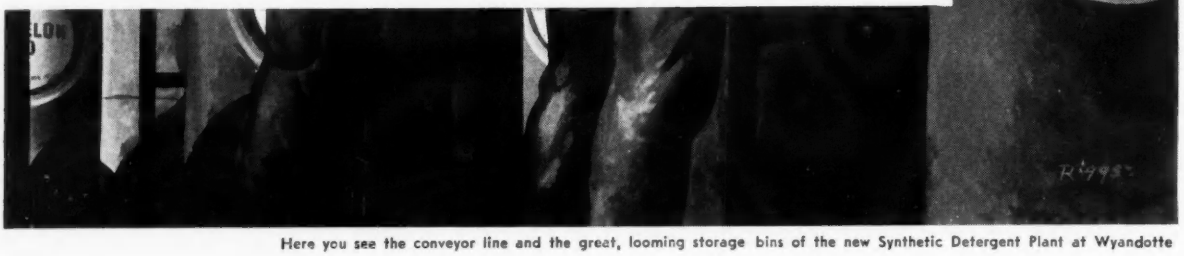
CALCOLOID FAST YELLOW DOUBLE POWDER has been developed to bring these same advantages to mills which prefer to use powders.

CALCOSOL FAST YELLOW PRINTING PASTE also has anthraquinone vat dye fastness. It produces rich, yellow shades which hold on tone in various depths on either cotton or viscose rayon. It has outstanding fastness to light, and shades down to pastel depth will withstand long light exposure with no perceptible loss in color strength. Fastness to washing, chlorine, cracking, dry cleaning, perspiration, water spotting and collafuse is excellent. It gives exceptional results in Plissé printing, and it is highly recommended for drapery printing and other applications where a fast vat yellow is desired.

*Trade-mark

AMERICAN Cyanamid COMPANY
CALCO CHEMICAL DIVISION
BOUND BROOK, NEW JERSEY

Made to meet the most exacting performance tests



Here you see the conveyor line and the great, looming storage bins of the new Synthetic Detergent Plant at Wyandotte

WYANDOTTE KREELON—*the white, uniform detergent and wetting agent*

If you produce cleaning compounds or other products that call for an effective synthetic organic detergent, you'll find the answer in *Wyandotte Kreelon**. Or if some operation in your plant requires an unusual amount of time and labor in the wetting-out process, chances are that Kreelon can help you do a *better job, faster.*

This versatile chemical, broadly classified as a surface-active agent, is designed to meet rigid performance specifications. Initial production of Kreelon was delayed for months until the product's color, chemical analysis and performance measured up to the highest standards. Controlled production maintains these standards.

The three grades of Kreelon produced range from *white* to *light cream* in color and have only a faint characteristic odor. Equally important is the fact that they retain their wetting, sudsing and cleansing properties in acid, alkaline or neutral solutions — in hard or soft waters.

Wyandotte Kreelon is readily available and economically priced. Complete information on its properties and suggested uses will be furnished at your request. In addition, our experienced technical staff stands ready to assist you in solving many detergency problems.

*Registered trade-mark

Wyandotte Chemicals Corporation
Wyandotte, Mich. • *Offices in Principal Cities*

SODA ASH • CAUSTIC SODA
BICARBONATE OF SODA
CALCIUM CARBONATE • CALCIUM CHLORIDE
CHLORINE • HYDROGEN • DRY ICE
SYNTHETIC DETERGENTS • GLYCOLS
CARBOSE (Sodium CMC) • ETHYLENE DICHLORIDE
PROPYLENE DICHLORIDE • CHLOROETHERS
AROMATIC SULFONIC ACID DERIVATIVES
OTHER ORGANIC AND INORGANIC CHEMICALS

Wyandotte
REG. U. S. PAT. OFF.

Photo Courtesy of
COTTON-TEXTILE INSTITUTE

higher color yield

FLOTEX prints brighter colors than natural gums on all types of fabrics. And for good reasons: FLOTEX produces a high viscosity with one-half the usual solids—only 8 to 10 ounces per gallon . . . deposits a very thin film on the cloth . . . washes out completely . . . and leaves the printed portion of even the sheerest of fabrics soft and pliable.

FLOTEX is a colorless, clear-cooking thickener with long-flowing, non-jelling properties. It serves as a replacement and extender for relatively more expensive Tragacanth and other natural and synthetic gums for printing the colors listed at the right by either roller machine or screen methods. In addition, it produces sharp pegs, outlines—*and smooth, uniform blotch prints.* Write for a test sample.

National also produces: **AMBERTEX,** a heavy-bodied thickener for white discharge, direct and vat color printing; **CLEARFILM** for sheer, lustrous finishes; **VAT THICKENER 36** for vat colors on cotton and rayon; **TABLE ADHESIVE** for screen printing; **FLOCK ADHESIVE 970** for chenille flock printing; **HOOSIER PEARL CORN STARCH . . . THIN BOILING CORN STARCH . . . CHLORINATED CORN STARCH . . .** and **DEXTRINES.**

Address: 270 Madison Ave., New York 16; Boston, Philadelphia, Atlanta, New Orleans, Indianapolis, Chicago, San Francisco, and other principal cities. *In Canada:* Meredith, Simmons & Co., Ltd., Toronto and Montreal. *In Holland:* Nationale Zetmeelindustrie, N. V. Veendam.

Flotex

A PRINTING THICKENER
for
RAPIDOGENS • PHARMOSOLS
INDIGOSOLS • ALGOSOLS
FAST COLOR SALTS
CHROME COLORS • FAST BLACK

National
STARCH PRODUCTS

STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

FOR YOUR INFORMATION

You don't need new capital

SYTON can give you...

The *benefits* of plant expansion—with *no extra plant investment!*

SYTON increases the strength of yarns spun on the woolen or worsted system 10% to 30%. Mills profit from this increase in many different ways:

- Many mills reduce twist, hence boost production.
- Others report fewer ends down during spinning and weaving... which also means more production.
- Still others find they can spin blends hitherto impossible.
- Almost all report they can spin any given stock to a finer count.

Hundreds of woolen and worsted spinners... more every day... are proving that Syton is a practical production speeder... a money maker for mill management.

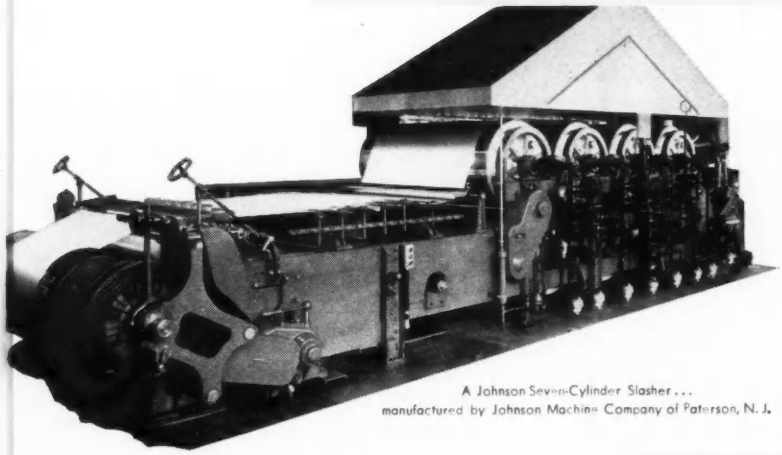
Why not find out today how much Syton can mean to your mill? Our technical staff stands ready to help. Just send the handy coupon on the right.

Syton, Stymer, Rezgard: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS AND PLASTICS

SERVING INDUSTRY
WHICH SERVES MANKIND

STYMER acetate size eliminates GEL problem



A Johnson Seven-Cylinder Slasher... manufactured by Johnson Machine Company of Paterson, N. J.

Enthusiastic mill owners everywhere report that Stymer can be left in size-boxes overnight... that it does not "set" when cold, causing lines to clog. It eliminates messy clean-up jobs... saves both time and materials.

Stymer is a new "man-made" sizing agent whose uniformity and quality are strictly controlled. In addition to its non-gelling properties, Stymer:

Increases weaving efficiency.

Gives warp a superior finish over a wide range of humidities and temperatures.

Reduces static electricity.

Is non-gumming, non-thickening, non-mildewing; will not set or sour.

Minimizes dirty knot problems. Stymer's detergent power removes dirt picked up by knots.

Forms abrasive-resistant film without undue stiffening.

Is easy to dissolve from the woven fabric in warm water containing a mild detergent.

To get full information on how you can increase slasher production, improve weave room efficiency, cut costs with Stymer, clip the handy coupon below.

N. Y. Board Approves REZGARD as Flame Retardant

Monsanto's new textile chemical, Rezgard A, meets all the requirements of the New York Board of Standards and Appeals as flame retardant for cellulosic fabrics. Flame tests made under the direction of the Board prove Rezgard protected fabrics will not flame, flash or glow outside of the char area.

Moreover, Rezgard gives fabrics soft, dry, non-dusting finishes. It does not change the appearance and hand characteristics of the fabric. It is low in cost, easy to apply, and has outstanding non-yellowing and aging properties.

Check the coupon at right for full information on this "approved" textile flame retardant for cellulosic fabrics—Rezgard A.

MONSANTO CHEMICAL COMPANY, Textile Chemicals Department
Desk ADT-18 140 Federal Street, Boston 10, Mass.

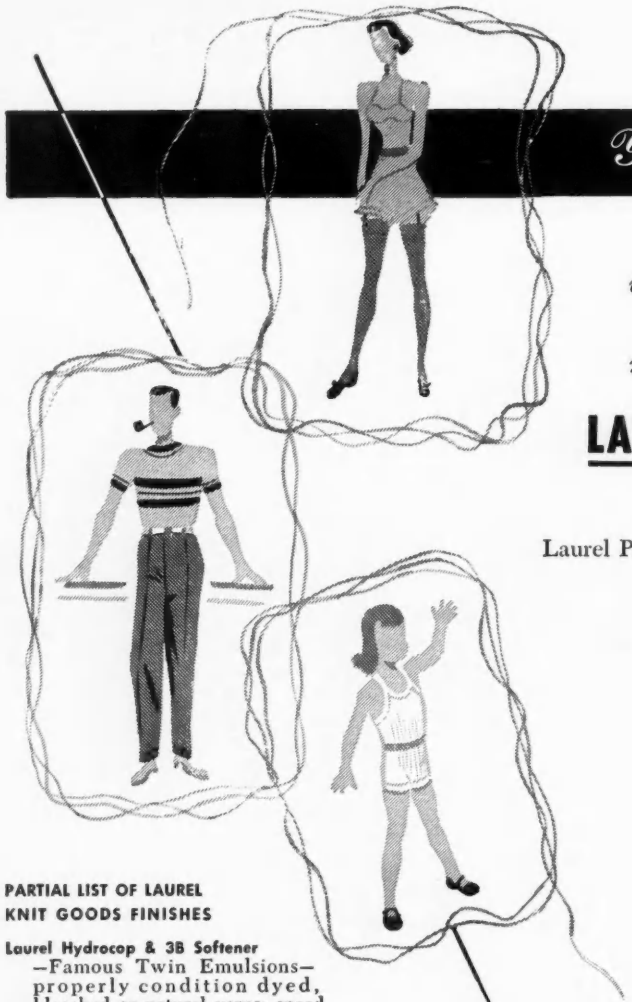
Please send me information on Syton, Stymer, Rezgard.

Name Title

Company

Address

City Zone State



Your knitting

will be smoother, faster, more profitable with* LAUREL *soaps, oils, finishes..

Laurel Processing Agents increase production and improve the appearance of your knitting—be it hosiery, underwear or outerwear, because they are tailored to your specific problem.

Known and used throughout the textile industry for quality and efficiency as well as low cost, Laurel Products are developed to meet dyeing, bleaching and finishing requirements of all fibers—natural, synthetics and combinations. Laurel Technicians are well qualified by their training and long experience to render you assistance. They will gladly cooperate with you as they do with hundreds of knitters in securing the just right combination for more efficient and profitable finishing of knit goods. Call, wire or write for practical recommendations.

PARTIAL LIST OF LAUREL KNIT GOODS FINISHES

Laurel Hydrocop & 3B Softener —Famous Twin Emulsions—properly condition dyed, bleached or natural yarns; speed twist-setting; produce more even running yarns; improve knitting qualities.

Laurel Brand Soaps — Versatile, superior, effective in all processing steps.

Laurel Textile Oil—Effects complete penetration, level dyeing, softness.

Laurel Hydrosol — Excellent scour and detergent. Yields cleaner, more even dyeings. Mildew-resistant.

Laurel Nylon Finishes—An efficient group of nylon processing agents including coning oils, conditioners, detergents, dispersants, semi-permanent finishes.

Laurel Synthetic Detergents—A new series of synthetic detergents of the non-ionic type — *Diotrene T* — excellent penetrant and softener; *Superterge L*—efficient penetrant and dispersant—all type colors; *Supergel RS*—effective scour used alone or in combination with alkalies, rapid penetrant and dispersant. All three are unusually good scours, penetrants and dispersants. Stable to alkali, acid and hard water. Highly satisfactory dyeing aid.

Laurel Hosiery Finishes — Natural, synthetic fibers and combinations. Produce desired finish, hand and snag resistance. Water repellents, spotproof, waterproof and resin finishes.

Laureltex #340 Transfer Remover—Quickly and completely removes transfers from hosiery prior to redyeing. Also removes finishing compounds. For all type fibers.

Laurel Mildewproofing Compounds—Prevent mold formation on hosiery. Effective on yarns and piece goods.

Laurel Stainless Knitting Machine Oil — Thoroughly lubricates. Emulsifies rapidly. Washes out in regular scour.

LAUREL SOAP MANUFACTURING CO., Inc.

textile soaps, oils, finishes

ESTABLISHED 1909

Wm. H. Bertolet's Sons

Warehouses... Paterson, N. J.
Chattanooga, Tenn. • Charlotte, N. C.
Offices ... 2601 East Tioga Street, Philadelphia 34, Pennsylvania

GIVE YOUR FABRICS

A HAND

A WIDELY ACCLAIMED PERFORMER AMONG CATIONIC FINISHING AGENTS

Where a soft, smooth "hand" is required, your selection of a cationic finishing agent is most important. DRUCOMINE A economically imparts the desired finish effect to fine fabrics, while assuring maximum preservation of light-fastness and safety to sensitive shades.

DRUCOMINE A can be employed successfully alone or in conjunction with synthetic resins. Samples and literature upon request.

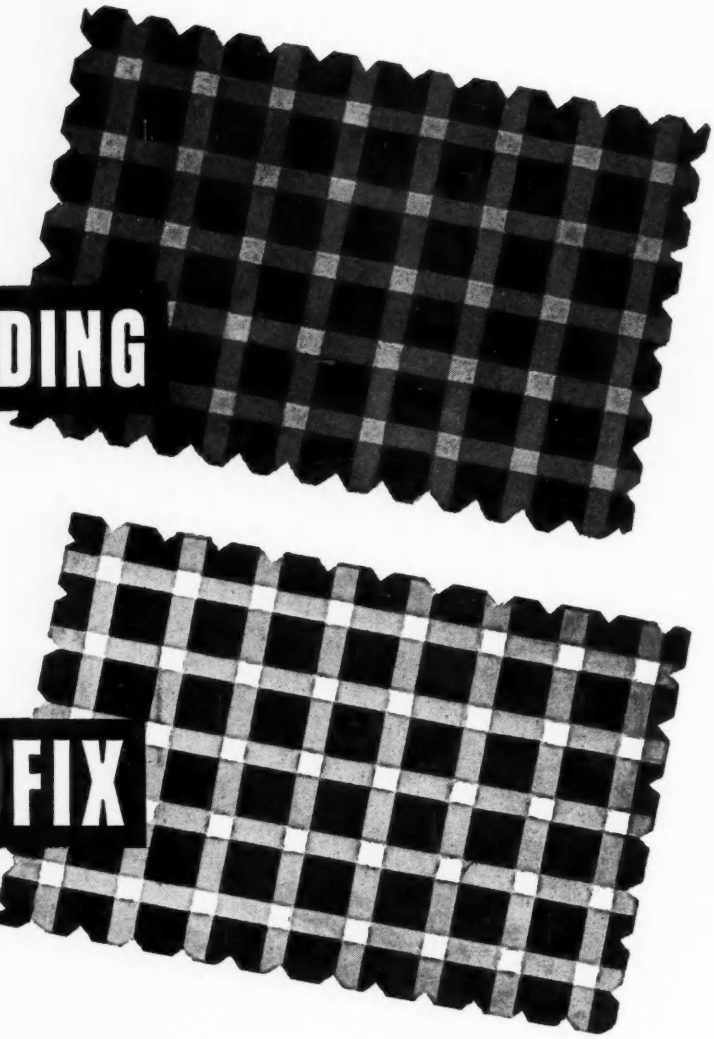
E. F. DREW & CO., INC.

15 EAST 26th STREET · NEW YORK 10, N. Y.

FACTORY & LABORATORIES: BOONTON, NEW JERSEY

BRANCH OFFICES: CHICAGO • BOSTON • PHILADELPHIA • GREENVILLE, S. C. • MONTREAL, CANADA • RIO DE JANEIRO, BRAZIL • BUENOS AIRES, ARGENTINA

STOP COLOR BLEEDING with *CULOFIX



Preserve crisp detail and contrast of prints by using time-tested Culofix as an after treatment.

Kill bleeding troubles no matter where they occur—in the finishing bath—batching up after dyeing—in cross dyeing, etc.

Improve water fastness of direct colors and impart a very desirable soft, full finish at the same time, thus eliminating an extra finishing operation. (Where no softening action is needed, Culofix L should be used.)

If fastness to water or prevention of color migration is essential to your direct color dyeings, write for Technical Service Bulletin #204-106.1. Our technical staff is at your service without obligation.

*REG. U.S. PAT. OFF.

Arkansas Co. INC.

Manufacturers of Industrial Chemicals for Over 40 Years

NEWARK, NEW JERSEY

FABREZ
TRADEMARK
Synthetic Resins
Products of REICHHOLD CHEMICALS, INC. the World's Largest Producer of Resins
Available now to give you better answers to your resin processing problems. Complete FABrez Technical Information is yours on request.
Exclusive FABrez Eastern Distributors —
ATLANTIC CHEMICAL CO., INC.
CENTREDALE RHODE ISLAND
RCI
Use ATCO Products

AN OPEN LETTER TO ALL CONCERNED WITH THE TEXTILE WET PROCESSING INDUSTRY:-

Let me bring you up-to-date as of press time — with the Textile Wet Processing Exposition that will be held in New York, at the 71st Regiment Armory, 34th Street and Park Avenue, June 6, 7, 8, 9 and 10.

This show is set up expressly for the fast-moving wet processing branch of the textile industry.

It is the only show of its kind ever held anywhere with *every* exhibit geared to the interests of those engaged in the bleaching, dyeing, printing, mercerizing and finishing of *all* textiles — no spinning, weaving, or knitting machinery, or any equipment for the MAKING of textiles will be shown.

Mills with their own finishing departments, and independent finishing companies, are sending their top-level men to this show. They're all coming to see the exhibits of key manufacturers of machinery and supplies, companies like Butterworth, Van Vlaanderen, James Hunter, Perkins, Blickman, Glasco, General Dyestuff, Richmond Oil, Soap & Chemical, Standard Brands, Walton Laboratories, Perfecting Service, Crucible Steel, Eastern Stainless, Cadgene, Bemis Bros., Hart Moisture Meters, Trumeter Company, Ten-Co Machine Co., Kearny Mfg. Co., Mount Hope Machinery Co., etc. Every exhibit will be of keen interest to all attendees.

For men in the wet processing phase of the industry it will indeed be a great show. Over 350 of the most important companies in the field have already requested from 4 to 20 complimentary trade guest tickets for their top level executives, their purchasing agents, — naturally hundreds more will request tickets before show time.

If you are a manufacturer of processing machinery, chemicals, dyestuffs, desizing agents and/or other supplies used in the wet processing phase of the textile industry, *this show offers you the opportunity to display your product to men who are eager to find out how you can help them.*

Mills with their own dyeing and finishing plants and commission dyers today are seeking methods of increasing efficiency of operation to improve their competitive position, *and they have the cash reserves NOW* to enable them to buy the things they feel will improve *production results.*

Textile Wet Processing Equipment & Supplies Exposition

Executive Offices: Suite 205—36 West 47th Street, New York 19, N. Y.

ARTHUR TARSHIS, *Exposition Manager*

LU 2-4627-8-9

H. W. BUTTERWORTH & SONS CO.

JAMES HUNTER MACHINE CO.

VAN VLAANDEREN MACHINE CO.

B. F. PERKINS & SONS

S. BLICKMAN, INC.

GLASCO EQUIPMENT CORP.

GENERAL DYESTUFF CORP.

CRUCIBLE STEEL CO.

STANDARD BRANDS, INC.

WALLERSTEIN CO.

PERFECTING SERVICE

ARLINGTON MACHINE CO.

EASTERN STAINLESS STEEL CO.

C. R. A. CORP.

WALTON LABORATORIES

MICRO-LITE COMPANY, INC.

BEMIS BROS.

RICHMOND OIL, SOAP & CHEM. CO.

CADGENE MACHINE CO.

HART MOISTURE METERS

TRUMETER CO.

TEN-CO MACHINE CO.

KEARNY MANUFACTURING CO.

MOUNT HOPE MACHINERY CO.

Yes!

They're great names in the wet-processing phase of the textile industry.

They're just a few of those whose products will be on display at the greatest show of its kind ever held anywhere.

You see — it's a show expressly for the top level men concerned with the dyeing, bleaching, mercerizing, printing and finishing of all textiles.

There'll be no extraneous exhibits to disturb — no looms, no warpers, no winders, no twisters, etc.

Please Note: Of special interest to the technical men of the industry and to others seeking enlightenment on the finishing phase of textiles, will be the exhibit of the apparatus and test materials as developed by the A. A. T. C. C.

Complimentary trade tickets to this show are obtainable by writing to the American Dyestuff Reporter, One Madison Avenue, New York 10, N. Y., or Expositions for Trades, Inc., 36 West 47th Street, New York 19, N. Y.

Chemicals from Fats

THEIR TEXTILE APPLICATIONS

ARMEENS® — FATTY AMINES

Aliphatic primary amines and their acetate salts, the Armacs, are adaptable as anti-static agents for synthetic fibers, as cationic emulsifiers, softening agents, resin finish modifying agents, and fire retardants.

Armac HT applied from water solution may be used as anti-static on synthetic fibers such as Vinyon, Saran, Nylon, and acetate rayons. Concentration 0.25 — 1.0%. Fibers may be dipped through the solution, passed over a wick from the solution, or the solution sprayed on. This application is particularly valuable for high speed weaving and mechanical finishing operations.

ARMIDS® — FATTY AMIDES

Aliphatic primary amides serve as ingredients for finishing waxes, resin coating components, plastic anti-blocks, chemical raw materials for durable water-repellents.

Armid HT is itself highly water-repellent; fine particle emulsions may be prepared with the usual emulsifying agents. It may also be condensed with formaldehyde or in combination with thermo-curing resin formulations and applied in emulsion form to fabrics. Thermally unstable quaternary ammonium water-repellents can also be prepared. The finishes thus obtained are highly resistant to removal by laundering or dry cleaning.

ARNEELS® — FATTY NITRILES

Aliphatic nitriles find use in fiber lubricants, softening agents and also as chemical raw materials for water-repellents and plasticizers.

Arneel HT is useful in combination with mineral oils and oil soluble emulsifying agents to provide fiber lubricants and oils for synthetic fibers and wools. Lubricating properties and scourability are excellent. The quantity of Arneel HT used with respect to mineral oil varies with the degree of lubricity desired. Non-ionic emulsifying agents are well adapted to this combination.

ARMOUR *Chemical Division*

Armour and Company, 1355 West 31st Street • Chicago 9, Illinois

NEO-FATS® — FATTY ACIDS

Fractionally distilled fatty acids serve as chemical raw materials for the preparation of anionic, non-ionic and cationic softeners, for soaps, detergents, leveling agents, starch modifying agents, textile lubricants and emulsifiers.

The long-chained saturated acids such as Neo-Fats 1-54, 1-56, 1-60 and 1-65, as well as the double distilled fatty acids are highly desirable base materials for anionic and non-ionic softening agents. Ammonium stearates show good softening and non-yellowing properties. Non-ionic softeners prepared by combining saturated Neo-Fats with glycerine or polyethylene glycols are compatible with all other finishing agents and have a negligible effect on fastness of dyestuffs.

ARQUADS® — QUATERNARY AMMONIUM SALTS

Alkyl trimethyl ammonium chlorides and dialkyl dimethyl ammonium chlorides, serve as cationic softeners, mildew preventive agents, dye-solubilizing agents, germicidal agents, cationic emulsifiers, and also as algae controllers in humidification systems.

Arquad 2HT is useful as a cationic softener for rayon fabrics particularly. It is highly concentrated — 75% active. Solutions of 0.1 — 0.4% concentration in water provide maximum softening action. Make up solution by adding 8-10 parts of water at 180° F., stir thoroughly and dilute with water to temperature desired. If desired, the stock solution at 180° may be added directly to processing equipment with some agitation.

MAIL THIS COUPON TODAY

Please send me the booklets checked —

- ☐ Neo-Fats
- ☐ Armeens
- ☐ Arquads
- ☐ Amides
- ☐ Arneels

Name..... *Title*.....

Firm Name.....

Address.....

City..... *Zone*.... *State*.....

YOU can get practically any hand you want, from mellow and lofty to firm and waxy, when the most suitable Onyxsan Cationic Softener is used.

On cotton, acetate, rayon or bemberg, the unique Onyxsan finish will be *permanent*. On other fibers you'll get equally attractive finishes, with outstanding resistance to washing. The Onyxsans, being substantive to textile fibers, create a finish which becomes an integral part of the fiber. Nap is not plastered down. Even on rough and nubby goods, Onyxsan leaves a soft, fine nap.

Stable to hard water, electrolytes and organic acids, they develop no odors, rancidity, mark-off or stiffness. Only small quantities are needed for virtually all treatments. The Onyxsans are applied in the pad, jig, quetsch, mangle or dye beck without changes in equipment or processing.

Write for Onyx Technical Bulletin TX-1 for the complete story of the Onyxsans and their individual characteristics.

ONYX OIL & CHEMICAL COMPANY

JERSEY CITY 2, N. J.

CHICAGO • PROVIDENCE • CHARLOTTE • ATLANTA

In Canada: Onyx Oil & Chemical Co., Ltd., Montreal, Toronto, St. Johns, Que.

For Export: Onyx International, Jersey City 2, N. J.

onyx CHEMICALS FOR DYEING · FINISHING · PRINTING

Rx FOR THE BLUES

for Navy Blues

PHARMASOLS*

Blue G
Blue GB

for Bright Blues

INDIGOSOL*

Blue IBC

*Reg. U.S. Pat. Off.

These azoic colors, for printing cotton, linen or rayon, produce Navy Blue of good fastness at a low cost. In combination with the Pharmasol Yellows they produce deep Browns.

Pharmasols are stabilized solutions, adjusted to the most practical concentration, which can be easily applied with a maximum of efficiency.

Pharmasols do not decompose and thereby overcome the problems of troublesome dissolving.

The outstanding soluble vat color for producing bright Blues in any depth, of excellent fastness, is Indigosol Blue IBC. It is suitable for dyeing, padding and printing on cotton, linen or rayon (excepting acetate fibers) where maximum fastness is required.

Indigosol Blue IBC is an important member of the group of very fast Indigosols, all of which are readily soluble and easily developed.

Write For Complete Information!

CARBIC COLOR & CHEMICAL CO., INC.

451-453 Washington Street — New York 13, N. Y.

BRANCHES: Philadelphia, Pa. • Providence, R. I. • Charlotte, N. C. • Hamilton, Ont.

Importers of the Manufactures of Durand & Huguenin S.A. Basle, Switzerland

Representatives: Los Angeles (Hathaway Allied Products)

Exclusive Distributors of: Pharmasols, Pharmols, Pharmacines

Knitting Arts Exhibition Number

AMERICAN

DYESTUFF REPORTER

Incorporating Textile Colorist and Converter

NORMAN A. JOHNSON, B.T.C.
Editor

MYRON D. REESER
Advertising Manager

GRACE B. BURTON
Production Manager

M. H. MORGAN
Circulation Manager

Official Publication of the Proceedings of the American Association of Textile Chemists and Colorists

Published every other Monday by the **HOWES PUBLISHING COMPANY, INC.**, One Madison Avenue, New York 10, N. Y. **C. R. Howes**, President; **Harry F. Crawford**, Executive Vice-President; **L. R. Keeffe**, Vice-President; **Ernest J. Finan**, Treasurer; **Norman A. Johnson**, Secretary; **C. Essenbreis**, Assistant Secretary

Also Publishers of
HOSIERY INDUSTRY WEEKLY
HOSIERY MERCHANDISING

APRIL 18, 1949

VOLUME 38 NUMBER 8

Contents

Contents of previous issues can be found by consulting the Industrial Arts Index and the Engineering Index, Inc. at your library

• Special Articles

The 39th Knitting Arts Exhibition 321
Fluorescent Bleaching 353
A. Landolt

• Departments

Abstracts 324
Patent Digest 325
Paul Wengraf
Trade Notes—New Products 327, 356

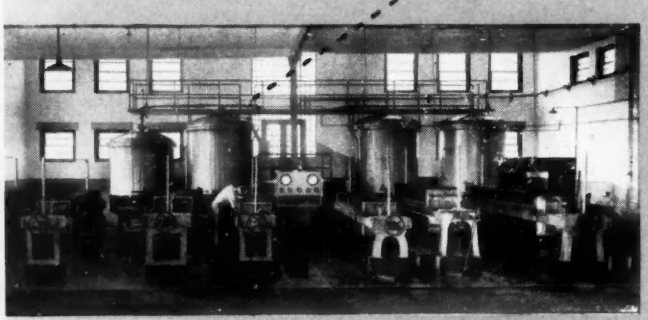
• Proceedings of the American Association of Textile Chemists and Colorists

General Research Committee Meeting.....P330
Resolution on Louis Atwell Olney.....P331
Philadelphia Section P331
Calendar P331
Atlantic City Convention.....P332
Membership Applications P332
Walter E. Hadley Elected Honorary Member.....P333
Mid-West Section P334
Western New England Section.....P334
NNE Section to Meet on April 29th.....P334
Lowell Textile Institute Student Chapter.....P334
Meeting and Outing of Mid-West Section Scheduled P334
Bradford Durfee Technical Institute Student Chapter P334
Rhode Island Section:
Vicara—New Fiber Developed from Zein.....P335
W. P. terHorst
New York Section:
The Element "X" in Nylon.....P339
A. W. Staudt
Testing and Auxiliaries Group Meeting:
A Re-Examination of Present Wetting Tests.....P343
Sidney M. Edelstein and Carl Z. Draves
Northern New England Section:
Data on a Laboratory Method for Wool Raw Stock Detergency P348
E. A. Leonard and L. Beck
Employment Register P352

Copyright, 1949, Howes Publishing Co., Inc.

this
tiny
dot
of
rust . . .

could contaminate hundreds of pounds of the finest dyestuffs, causing spots on the finished dyed fabric. Althouse PRECISION Dye-Making *eliminates* this "Dyers' Enemy Number One" . . . CONTAMINATION!



Non-corrosive, modern presses, plus specially-built equipment (even down to the trucks) are used so that our dyestuffs NEVER come in contact with *any* Corrosive Metals while in the wet stage. This is just another example of the many steps taken in Althouse PRECISION Dye-Making . . . to assure you of "uniformity" in every shipment of ALTCO dyestuffs, today and always!

pace-setter in precision dye-making

ALTHOUSE
Chemical Company, Inc.
READING · PA.

AMERICAN

DYESTUFF REPORTER

VOLUME 38 APRIL 18, 1949 NUMBER 8

The 39th KNITTING ARTS EXHIBITION

THE 39th Knitting Arts Exhibition will be held April 25 through April 29 at the Atlantic City Auditorium under the auspices of the National Association of Hosiery Manufacturers. Exhibiting will be the industry's leading manufacturers of knititng, dyeing and drying machinery, mill supplies and allied products. Machines, processes and finished products will be featured.

Tickets may be secured free from exhibitors or from the show management: Albert C. Rau, Manager, 929 Park Square Bldg., Boston, Massachusetts.

The AMERICAN DYESTUFF REPORTER will have booths 128-129 and you are cordially invited to visit us.

Although you will find all of the exhibits of interest there follows a list of those exhibitors who will be of particular interest to REPORTER readers:

* * * * *

Amalgamated Chemical Corporation

Rorer and Ontario Streets, Philadelphia 34, Pennsylvania
Booth 382

Reception booth.

In attendance: Harold B. Dohner, Robert A. Bruce, John M. Jester and Hillary Robinette, Jr.

American Aniline & Extract Company, Inc.

Venango and F Streets, Philadelphia, Pennsylvania
Booth 121

On display will be PM-90 Size (sizing compound for nylon), Orthonyl and Orthonyl W (nylon coning oils) and Orthocat (cationic softener for all fibers).

In attendance: William J. Duddy, R. D. McCarty, Martin H. Silberman and Lynn Kippax.

Bausch & Lomb Optical Co.

Rochester 2, New York
Booth 416

On display will be the Ortho-Rater, an optical instrument designed for rapid and reliable measurement of employee visual characteristics.

In attendance: W. A. Carter, H. Cannan and M. Rutner.

Burlington Engineering Company, Inc.

Graham, North Carolina
Booths 116-117

There will be shown a 3-foot stainless steel dye beck, a 50-lb. stainless steel rotary hosiery dyeing machine and a stainless steel package dyeing machine.

In attendance: J. Saunders Williamson, J. A. Okey, D. L. Lomax and W. J. Newcomb.

H. W. Butterworth & Sons Company

York and Cedar Streets, Philadelphia 25, Pennsylvania
Booths 178 and 203

Five models of Butterworth equipment will be shown. Also to be introduced will be the Butterworth new packaged bleaching unit.

In attendance: DeHaven Butterworth, Sr., J. Ebert Butterworth, Edward S. Pierce, Frederick N. Spoerl and Paul Landwher.

College Pharmacy Products

251 Main Street, Medford, Massachusetts
Booth 462

Featured will be Clena-form, a white, creamy liquid used as a cleaning agent for removing dyes, color and resins from metals while the metals are hot. On cold metals, it acts as a lubricant. The product is said to be non-inflammable, non-volatile and to contain no dangerous chemicals.

In attendance: B. Zarakov and Miss Wilma Zarakov.

E. I. du Pont de Nemours & Company, Inc.

Wilmington, Delaware
Booths 38-39-40-49-50 and 51

This display will include "Methacrol" FNH resin dispersion, a finish for low-denier nylon hose to impart body; "Methacrol" NH resin dispersion, a finish for nylon hose to impart snag resistance; "Methacrol" lubricant C, a hosiery finishing agent. In addition there will be shown yarns, fabrics, and some garments featuring "Orlon" acrylic fiber, nylon and viscose process rayon.

In attendance: Sales personnel from district offices of the various Du Pont divisions.

Essex Riplyn Co.

Hackettstown, New Jersey
Booths 1 and 2

Hosiery drying forms, steam- and electric-operated; interchangeable toe and leg contour forms, featuring a shape-changing attachment. Featured will be a form with bulged toe and heel, to eliminate "dog ears" in finished stockings.

In attendance: R. S. Lynch, Sr., R. S. Lynch, Jr. and Paul Guggenheim.

Fabric Finishing Company

32 Main Street, Lodi, New Jersey
Booth 126

An extensive range of finishes for knitted cotton and worsted fabrics will be exhibited.

In attendance: Larry Wess, General Manager.

W. F. Fancourt Co.

516-518 South Delaware Avenue, Philadelphia 47, Pennsylvania
Booths 371 and 372

Featured will be a complete new line of finishing materials for the hosiery trade with particular stress on a new resin development which is said to be a permanent one-product finish for use on nylon hosiery. It is stated that it imparts good body, fine handle and feel to the finest denier nylon, and tightens and clarifies the stitches. It is a one-bath operation and is applied in the conventional manner. Hosiery finished with this treatment is said to be highly snag-resistant. Also on display will be "Nydull", a new delusterant said to be very efficient for delustering 15 denier sheer hosiery. Also included will be a complete line of hosiery finishes and dyeing and scouring products, suited for one or two bath dyeing of nylon. Hosiery finished with the above products will be shown.

In attendance: W. F. Fancourt, Jr., W. F. Fancourt, 3rd, John L. Fancourt, Howard A. Virkler, Thomas Lindley and Claude G. Wolff.

Fletcher Works, Inc.

Glenwood Avenue & Second Street, Philadelphia 40, Pennsylvania
Booths 166-167 and 168

Exhibited will be the latest developments in rayon throwing machinery and centrifugal extractors. A 40-inch Fletcher "Whirlwind" Extractor with supersmooth stainless steel basket will be shown. This machine will be equipped with an automatic hydraulic brake and finger-tip timer control.

In attendance: R. J. Bartholomew, President, Fletcher Schaum, vice-president, W. H. Rometsch, secretary and treasurer. Charles W. Moore, sales manager, Warren Egee, chief engineer, T. B. Baldridge, Jr. and T. M. Jackson, Jr., sales engineers and F. W. Warrington, Southern representative.

Grand Rapids Textile Machinery Co., Inc.

1405 S. Division Avenue, Grand Rapids, Michigan
Booths 175 and 176

Large illustrations of various machines for knitting, dyeing, drying, finishing, cutting and pressing of tubular knit fabrics and garments will be shown. New developments include: preboarding nylon piece goods, dyeing and finishing tricot fabric in tubular form, new bleaching tank for cotton and automatic loader for tank and a new unit dryer for reducing shrinkage in knit goods made of rayon, acetate, wool or cotton.

In attendance: W. H. Shields and W. F. Moon.

E. F. Houghton & Co.

303 W. Lehigh Avenue, Philadelphia 33, Pennsylvania
Booth 89 and 90

Several new types of synthetic detergents will be shown and wetting agents will be demonstrated. Needle oils, rust preventatives and general machine lubricants will be displayed with special emphasis on lubricants inhibited against oxidation and corrosion. Rayon sizes and softening oils in the Raylubric series, as well as woolen and worsted oils, including Lanolubric and Sulfol brands, will be included in the display. A line of textile leathers and belts will complete the exhibit.

In attendance: C. B. Kinney, manager of textile sales, H. E. Sanson, Eastern general sales manager, D. C. Miner, advertising manager, and four Eastern sales division representatives: H. E. Peterson, O. H. McClay, J. R. Clendenning and H. H. Kirkpatrick.

The Industrial Dryer Corporation

432 Fairfield Avenue, Stamford, Connecticut
Booths 73 and 74

Exhibited will be the "H-W" conditioner for twist setting. The conditioner will be complete with Bristol control hygrometer, hydramotor valves and time clock.

In attendance: F. W. Caesar, J. R. Tutt, P. H. Friend (sales representatives), W. A. Kennedy, Tom Jones (Southern representatives), J. C. Westaway, K. G. Little, E. W. Schmiedel and C. V. Grantham (Canadian representatives).

The International Nickel Company, Inc.

67 Wall Street, New York 5, N. Y.
Booths 410 and 411

The use of corrosion-resistant materials in dyeing, bleaching and finishing plants will be featured. The display will show mill and fabricated forms of Monel and Inconel. Included among the fabricated forms will be hosiery dyeing machines, skein dyeing machines, covered rolls, conditioning cabinets, moistening boxes, size cooking kettles, tank linings and accessories such as pails, dippers, etc. There will also be a display of Ni-Rod, a new type of welding electrode for making machinable welds in cast iron. Precision castings in Monel and Inconel also will be shown. A variety of uses of Inconel will be exhibited.

In attendance: C. J. Bianowicz and A. C. Zino.

Johnson Engineering & Manufacturing Co.

Wilkes-Barre, Pennsylvania
Booth 71

Products made from stainless steel will be displayed.

In attendance: George McGee, vice-president.

Kali Manufacturing Co.

427 Moyer Street, Philadelphia 25, Pennsylvania
Booth 69

On display will be: Kalpinols, Kali Needle Kleaner, Hydroxy Hand Cream, Nylowash (for scouring nylon and leveling in the dye bath), nylon oils, rayon oils, sizes for rayon, acetate and nylon, Watershield (a water repellant), cation softeners and Chlorapon (a buffer against chlorine in shrinkproofing of wool).

In attendance: William B. Griffin, Southern representative, John Gilroy, Ray Schadewald, Fred Muller, Jas. A. Branegan, Jr., Eugene W. Wall and S. G. Davenport, president.

Walter Kidde & Company, Inc.

Belleville, New Jersey
Booths 64 and 65

The Kidde tension control and tension compensator will be featured. The machines will be in operation.

In attendance: C. L. Griffin, assistant vice-president, Jay S. Gosnell, David Kroll and Walter Elder.

Laurel Soap Mfg. Co., Inc.

Tioga, Thompson and Almond Streets, Philadelphia 34, Pennsylvania
Booth 207

Soaps, oils and finishes will be featured.

In attendance: Clarence E. Bertolet, president, William H. Bertolet, Jr., treasurer, A. Henry Gaede, Charlotte, E. W. Seasongood and T. C. Holst, Philadelphia.

Leatex Chemical Co.

2722 N. Hancock Street, Philadelphia, Pennsylvania
Booth 112A

Textile chemicals.

Onyx Oil & Chemical Company

Warren & Morris Streets, Jersey City, New Jersey
Booths 210 and 211

Some of the following compounds will be exhibited, together with hosiery finished with some of these materials: Xyno-Resin finishes, Eternalure finishes, cationic softeners, dulling agents, synthetic detergents, wax emulsions, water repellent compounds, emulsifying and dispersing agents, bactericides and sanitizing agents and other textile finishing compounds.

In attendance: Leon P. Brick, vice-president, Albert R. Jenny, sales manager, Emil W. Peters, director of hosiery division, A. C. Mackey, director of industrial division, F. E. Schroeder, manager of Chicago office, Clifford R. Smith, manager of Atlanta office; R. Allan Watson and J. Walter Huber, sales representatives.

Paramount Textile Machinery Co.

31 South Wabash Avenue, Chicago 3, Illinois
Booths 284-285-301-302-303 and 304

Featured at this exhibit will be the following items: Paramold Retort Vertical Model 33, specifically designed for preboarding half hose and anklets made of spun and filament nylon or combinations of nylon and other yarns; Paramold cast aluminum preboarding form, featured in the Paramold 33; deluxe air-cooled table, said to have significant improvements for greater boarding efficiency. Also to be shown is a new transfer machine.

In attendance: John C. Fenley, sales manager, Henry Pope, Jr., president, William Pope, vice-president, W. H. Alberston, O. A. Siegel, L. D. Ross, W. E. Pike, L. J. Alberston, H. Campbell, H. Richter and G. E. Dunn.

Philadelphia Metal Drying Form Co., Inc.

4550 Torresdale Avenue, Philadelphia 24, Pennsylvania
Booths 103-104 and 105

This exhibit will consist of the following items: metal hosiery drying forms, multishape attachments, "Hi-Temp" intensifier tables and accessory equipment such as envelope fillers, tissue inserters, etc.

In attendance: Joseph Seligman, president, Thomas A. Temple, vice-president and Harry F. Stern II, secretary.

E. W. Pike & Co.

492 North Avenue, Elizabeth, New Jersey
Booth 281

On display will be "Flash-O-Lens" illuminated magnifier and microscopes.

In attendance: Mrs. Sally Pike Kramer and Eugene W. Pike, Jr.

Proctor & Schwartz, Inc.

Seventh Street and Tabor Road, Philadelphia 20, Pa.
Booths 186 to 195, inclusive

Featured will be automatic boarding equipment for women's hosiery together with preboarding equipment for nylon hosiery. The boarding equipment will be in actual operation and the preboarding equipment will be operated mechanically. The Redman process for shrink-proofing underwear will be explained by means of drawings and diagrams and representatives will answer questions on the system. Also to be shown will be boards in various steps of manufacture to demonstrate quality of product.

In attendance: Charles S. Tiers, manager of the hosiery division, B. A. Plesser, W. J. Merrigan, R. P. Helder and M. T. Fleming.

The Prosperity Co., Inc.

Syracuse, New York
Booth 3

On display will be an extractor and special press for finishing all types of knit goods.

In attendance: S. K. Ackley and E. Miller.

Richmond Oil, Soap & Chemical Co., Inc.

1041-1043 Frankford Avenue, Philadelphia 25, Pennsylvania
Booth 118

A complete line of chemical specialties for cotton, wool and synthetics consisting of scouring compounds, dyeing aids, finishes, spinning compounds and hosiery knitting compounds will be displayed.

In attendance: William Alkus, vice-president, Morton W. Levi, chemical engineer, James P. Haverson, sales representative, Henry Rubin, sales representative and John W. Schenkel, textile chemist.

San-KNIT-ary Textile Mills

5423 Lena Street, Philadelphia, Pennsylvania
Booth 112C

On display will be knitted dye nets and various types of dye bags. These are recently developed, specially constructed and shaped nets for protecting the sheerest hosiery from damage.

In attendance: Paul D. Dalsimer, general manager and Richard Reis, vice-president.

Scholler Brothers, Inc.

Collins and Westmoreland Streets, Philadelphia 34, Pennsylvania

Booths 232-233-258-259-270 and 271

Featured will be soaps, softeners and finishes as used on textiles in general, with emphasis on those used on hosiery, together with samples of hosiery and knit goods treated with same. Also to be featured is the "Schollerize" wool shrinkage control process.

In attendance: F. C. Scholler, L. M. Boyd, E. S. Atkinson, J. O. Sweitzer, C. W. Jones and W. H. McGuire.

Scott Testers, Inc.

101 Blackstone Street, Providence, Rhode Island
Booth 352

On display will be the completely redesigned IP-4 Serigraph tensile tester. The versatility of the machine will be demonstrated by the application to hosiery testing of newly developed fixtures which test the stretch and recovery of various parts of hosiery from instep to welt. Each test is permanently recorded on a picturized chart convenient for filing.

In attendance: David C. Scott, Jr., assistant treasurer and Harold W. Morton, sales engineer.

Smith, Drum & Company

432 West Allegheny Avenue, Philadelphia 33, Pennsylvania
Booths 52 to 61, inclusive

The following equipment will be exhibited: package dyeing, extracting and drying equipment, skein dyeing equipment including new pulsating skein dyeing machine, hosiery dyeing equipment including rotary and paddle type.

In attendance: Harry S. Drum, William C. Dodson, Albert P. March, Perry M. Parrott and Joe M. Ballentine.

Synthane Corporation

Oaks, Pennsylvania
Booths 201 and 202

Laminated phenolic plastic custom made items will be exhibited. Synthane is a thermosetting plastic, dimensionally stable and resistant to temperatures up to 275°. It can be precision machined and the machined edges can be buffed smooth.

In attendance: R. R. Titus, president, Herbert Widdop, sales manager, J. K. Johnson, Philadelphia district manager, C. B. Moss, Southeastern district manager. E. E. Smith, assistant sales manager, M. B. Firehock, N. P. Harvey and R. B. Galloway, sales representatives.

Tolhurst Centrifugals Division

American Machine and Metals, Inc.
East Moline, Illinois
Booths 454 and 455

On exhibit will be a 40" Centrifugal Atlas Extractor with stainless steel basket, safety cover and automatic timer and a 20" Minute Man Extractor with stainless steel basket and stainless steel case.

In attendance: F. C. Weicker, general sales manager, J. R. Angel, P. P. Johnston, T. M. Broughton and Ib Jensen, sales engineers.

Tubular Textile Machinery Corporation

33-61 54th Street, Woodside, L. I., New York
Booths 203 and 204

Photographs and diagrams of finishing machinery for knitted fabrics will be shown.

In attendance: Eugene Cohn, Jules G. Walter and Don Foreman.

United States Testing Company, Inc.

1415 Park Avenue, Hoboken, New Jersey
Booths 406 and 407

Two items of special test equipment will be exhibited: the lubricity tester developed by Nopco Chemical Company for determining the effect of oil and size on knitting yarns used in hosiery and other knitted products and a new type of knit shrinkage gauge designed to measure the dimension necessary to restore knitted fabrics to shape after laundering. It is stated that this latter apparatus lends itself to accurate control of shrinkage for laboratory evaluation and mill control.

In attendance: H. M. Block, S. C. Mayne, Jr., A. J. Kellner and W. F. Morgan.

Venango Engineering Co., Inc.

G and Lycoming Streets, Philadelphia 24, Pennsylvania
Booths 256-257-272 and 273

Dyeing equipment.

In attendance: E. F. Slaughter, J. Fred Slaughter, Hugh Williams, A. Robertson and C. Harry McCandless.

Walton Laboratories, Inc.

1186 Grove Street, Irvington, New Jersey
Booths 81 and 83

A complete line of industrial, commercial and residential humidifiers, as well as humidity controls and indicating equipment, will be exhibited. Various models will be in operation.

In attendance: William Feldermann, president, John B. Feldermann, advertising manager and J. R. Lewis, industrial sales manager.

ABSTRACTS

Reaction Between Wool and Active Chlorine

Daniel Frishman, Lydia Hornstein, Arthur L. Smith and Milton Harris, Industrial and Engineering Chemistry, page 2280, Vol. 40, No. 12, December, 1948.

Treatment of wool with solutions of active chlorine modifies the fiber and produces a resistance to shrinkage during laundering.

Using wool yarns and solutions of sodium hypochlorite containing 9% of available chlorine or 4.5% active chlorine, treatments were made for a period of 90 minutes in baths buffered at pH values from 1.1 to 10.7 at 25°C.

Curves of the rate of reaction between wool and sodium hypochlorite indicate that three different reactions take place in the pH ranges of 1.3 to 7, and 9 to 11. Chemical analyses of the treated fibers, including sulfur, cystine and nitrogen content, alkali solubility, and weight loss, confirms these results. It was found that the oxidation potentials of the treating solutions decreased with increasing pH, while the greatest modification of the wool protein occurs at the lower pH values.

It is indicated that a pH of 8 to 9 is the optimum condition for the treatment of wool with chlorine.

Padding Operation Has Many Variables

C. L. Zimmerman and G. L. Royer, Textile World, page 124, Vol. 98, No. 10, October, 1948.

A study has been made of the variables affecting dye decomposition on a fabric during the padding or squeeze roll operation. Factors which are of prime importance are the percent pickup and the ratio of dye to water. Using a bleached, unmercerized cotton poplin, with direct dyes, pigments, vat leucos, and soluble vats, an investigation was made of the effect of cloth construction, wetting agents, concentration, speed, temperature and immersion. The results of varying these conditions are discussed.

New Developments in Army Sea Water Laundering

T. H. Vaughn, E. F. Hill, C. E. Smith, L. R. McCoy and J. E. Simpson, Industrial and Engineering Chemistry, page 112, Vol. 41, No. 1, January, 1949.

The results of a research program undertaken by the Research and Development Branch of the Office of the Quartermaster General to develop suitable detergents and procedures for power laundering in sea water are reported.

Laboratory test methods were devised which would differentiate between good and poor products. However, these methods were not found satisfactory for distinguishing between acceptable and superior products.

It was found that with synthetic detergents, optimum soil removal and whiteness retention was obtained at temperatures between 120 and 140° F. The laundering formula developed as a result of this study is reported to be superior to the Navy as well as the Army Surgeon General formula.

Moisture Determination in Textiles by Electrical Meters: Part I

Richard K. Toner, Carol F. Bowen and John C. Whitwell, Textile Research Journal, page 526, Vol. XVIII, No. 9, September, 1948.

Two electric moisture meters, one AC and the other DC, for use with bulk textile materials, have been studied and the results of tests made on white, scoured wool yarn are reported.

Although basic calibration curves for both instruments are presented in this paper, the use of these meters requires a calibration curve for the specific material to be tested. Statistical analysis of the data indicates that an accuracy equivalent to that of an oven can be obtained.

Use of Cation Active Finishes

George Wiseman, Canadian Textile Journal, page 43, Vol. LXVI, No. 2, Jnuary 24, 1949.

Cation active finishes are being applied as softeners to practically every fiber and are superior to the common softening oils and tallows particularly when used on synthetic yarns and fabrics. Although tertiary cationic softeners are used for most all textile materials they have been found to be unsurpassed for improving the hand of shrink-proof yarns.

Methods of application of the cation active finishes are discussed and recommended procedures given. Laboratory tests for the evaluation of cationic strength. permanency to washing and chlorine retention are included.

Retardation of Heat-Induced Strength Loss in Cotton Yarns by Liquid Ammonia Treatment

Harry B. Moore, Textile Research Journal, page 749, Vol. XVIII, No. 12, December, 1948.

A study has been made of the effect of liquid ammonia treatment of cotton rovings and yarns on strength after subjection to elevated temperatures.

An increase of strength was noted as a result of treatment; however, it was characteristic only of the yarns and not the fibers. It is indicated that the increased strength is the result of a frictional effect of a different nature than that caused by swelling of the fiber.. This is shown by comparative tests in which the fiber was treated with sodium hydroxide of a concentration sufficiently high to swell the cotton but less than that required for mercerization. In this case the fibers were weaker after heating.

The Incidence of Calcium Salts in Textile Finishing

"Colourist", Textile Manufacturer, page 430, Vol. 74, No. 885, September, 1948.

The function of soaps and the formation of insoluble soaps as a result of the presence of calcium is reviewed. The effect of insoluble soaps and residual calcium salts from bleaching operations on dyeing, finishing and printing operations is described. Methods for preventing the formation of insoluble calcium soaps are given.

The Screen Printing of Textiles

E. S. Beton, Canadian Textile Journal, page 46, Vol. LXV, No. 22, October 29, 1948.

This paper discusses screen printing and the current trend towards mechanization. Stencilling and the methods of screen making are reviewed. The screen printing operation and some of the newer techniques are described.

Reworked Woolens Are Better if Stripped Before Dyeing

K. E. Marsden, Textile World, page 141, Vol. 99, No. 2, February, 1949.

Since the heavier woolen materials such as melton, pilot, beaver and tweed generally contain reprocessed and reused fibers the color of which usually is dark, it is necessary to strip in order to dye a lighter shade. Blends of reprocessed or reused fibers often contain cotton and in order to obtain a satisfactory dyeing when this fiber is present the normal procedure must be followed by either burl dyeing or cold staining with cotton dyes. In some cases a one-bath union dye method is suitable.

Penetration must be considered when dyeing the heavier fabrics and the use of a penetrating agent is recommended. Several suggested dyestuffs for various applications are listed and dyeing procedures for use on the reworked woolens are given.

• PATENT DIGEST •

PAUL WENGRAF

Water Repellent Fabrics—Zirconium Salts and Cetylacetamide, Dispersed in Water G, 2, 02

U. S. Pat. 2,455,886
(Sayles Finishing Plants, Inc., Ariente-Allen, December 7, 1948)

Durable water repellent finishes on cotton or rayon are obtained by impregnating with an emulsion or dispersion of a long chain fatty acid amide, especially *cetylacetamide*, in Butyl Cellusolve and water, produced by mixing well and heating the ingredients and on the other hand by blending this composition with insoluble zirconium salts (e.g. zirconium stearate) and soluble ones (zirconium formate). The dispersion is effected by working the mixture in a colloid mill; wax can be added in this process. An aqueous dispersion of 10-15% solid content was found to give good results after drying the padded fabrics at a temperature of 280-300°C. The higher the drying temperature the shorter the development may be. Fabrics treated according to this method have a full, leathery hand and possess air permeability and durability after washing and dry cleaning. This fact has to be emphasized because the inventors observed that cetylacetamide itself does not react chemically in this process. It must therefore have been otherwise insolubilized within the fibers.

References cited by the Patent Office, among others:

U. S. Pat. 2,345,142 (Mueller): textile water repellent emulsions are described, containing in the aqueous phase basic salts of Al, Zr, Ti, etc. and in the disperse phase waxes, fats, oils and the like in the absence of protective colloids, the basic salts stabilizing the emulsion. (Impregnole patent).

U. S. Pat. 2,328,431 (Gen. Aniline): textiles are rendered water repellent by applying dispersions of paraffin, wax, soap and zirconium acetate or formate.

Reference is further made to the abstract to U. S. Pat. 2,415,017 (silicon containing fatty amides). AM. DYEST. REP. 1947, 396 (Montclair Research) and to French Pat. 905,659 (Hydrierwerke) discussed in AM. DYEST. REP. 1947, 154.

Pigment Printing—Rubber or Vulcanized Oils, Dispersed in Resin Solutions D, 2, 07

U. S. Pat. 2,453,752
(Stein, Hall & Co., La Piana-Bosland, November 16, 1948)

The invention relates to pigment printing methods used in the past. Fixation

of the pigments has been carried out, among others means, by using varnishes which harden not only on the textile fabrics but also during the printing procedure whereby the paste stuck to the engraved parts of the printing rollers. The odor of the evaporated solvents was another drawback observed in this process. According to the present invention it is possible to produce soft prints which will not crack nor wear off by mechanical abrasion and which can be made water insoluble by an appropriate aftertreatment. Generally speaking the printing pastes consist of oil-in-water emulsions. The outer (aqueous) phase comprises a water soluble resin, dissolved or dispersed in water while the inner (lacquer) phase contains a solvent soluble, rubber-like substance. Any resin can be used as the essential component of the aqueous phase, for instance a formaldehyde-urea pre-condensate; but water soluble albumen or casein, soy bean protein or the like can also be incorporated into the aqueous solution. The principal condition is that the resin, when formed, adheres firmly to the fabric, thereby fixing the pigment at the same time. The inner phase comprises natural or synthetic vulcanized rubber, also vulcanized sulfurized vegetable oils known as rubber substitutes or "factice". Pigments, either white or colored, are blended with this phase. The "factice" type thickeners, being relatively cheap, are used mostly for colored pigments while rubber derivatives are rather recommended for white prints. The proportions according to the specification are about 50 p. water, up to 70 p. resin forming ingredients, up to 70 p. water immiscible solvents and up to 30 p. oil-soluble rubber-like substances. According to an example the aqueous phase contains stearic acid, urea, casein, triethanolamine, formaldehyde and dimethylolurea; the lacquer phase contains mineral spirits, vulcanized rape seed oil and esterified (water insoluble) starch. The pigments may be added after the emulsion is complete. The final fixation is effected by heating (curing) the resin components to the temperature required or in some instances by simple acidification.

References cited by the Patent Office, among others:

U. S. Pat. 2,361,277 (Ciba): describes delustered prints; the printing paste contains titanium dioxide, casein, borax and xylene in the dispersed phase and formaldehyde in the aqueous phase. This emulsion becomes more viscous on standing and thus suitable for printing textiles.

U. S. Pat. 2,296,427 (Jasco Inc.): aqueous dispersions of poly isobutylene are obtained by first dissolving it in a water insoluble solvent such as chlorobenzene and dispersing this solution by applying an emulsifying agent of the fatty acid ester type.

U. S. Pat. 2,179,256 (Dewey & Almy): a rubber dispersion is used, principally as an adhesive, containing broken down rubber and copal rosins in the dispersed phase while the continuous phase consists of aqueous solutions of salts of other rosins and casein.

Shrinkproofing Wool—Hypochlorite, Applied Under Special Conditions A, 2, 04

U. S. Pat. 2,457,033
(Harris Research Lab., Clapham-Harris-Smith, December 21, 1948)

Many attempts have been made in the last years to overcome the shrinking properties of wool. The more recent suggestions were based *(a)* on the use of resin type condensates and *(b)* on disrupting the cystine linkages to form new side chains of a greater stability. See the following for group *a:* U. S. Pat. 2,441,859 (Alrose): REPORTER, 1948, 768 or U. S. Pat. 2,395,724 (Tootal): REPORTER, 1946, 336; and for *b:* U. S. Pat. 2,434,562 (Text. Foundation): REPORTER, 1948, 445 or U. S. Pat. 2,418,071 (Harris): REPORTER, 1947, 512). Working with hypochlorites or hypobromites, which were first used in the shrinkproofing technique, is preferred in many cases because the ingredients are low-priced and the method is very economical. Serious disadvantages in hypohalite treatments are fiber destruction and streakiness of the treated goods, occurring frequently when the process is not quite under control. The present invention discloses special favorable working conditions. It has been ascertained that a hypochlorite solution of a pH = 9 or more, thus distinctly alkaline, does not sufficiently modify the fiber structure to impart shrink resistance. A hypochlorite solution under pH 7.5 on the other hand promotes a very fast reaction, damaging in some events the fibrous substance. The optimum pH is therefore between 7.5 and 9 and preferably 8.5-9.0; as a buffering substance borax $Na_2B_4O_7 \cdot 10\ H_2O$ is recommended. The buffer has the advantage of forming a water soluble calcium borate if calcium hypochlorite is used. (A special brand, high test hypochlorite "HTH", manufactured by Mathieson, having a 70% available chlorine content proved best.) The usual aftertreatment with sodium hydrosulfite can be carried out after the chlorination. Shrinkage was reduced by this process from 20% to 1%, from 23% to 4% and from 58% to 24%.

References cited by the Patent Office, among others:

U. S. Pat. 2,403,906, 1946 (Du Pont): recommends a wool shrinkproofing treatment with bis (acetyl thiomethyl) urea and bis (acetyl thiomethyl) adipamide.

U. S. Pat. 2,403,937, 1946 (Du Pont): treatment with formamidine-sulfonic acid, a strong reducing agent, produced from thiourea and hydrogen peroxide, for shrinkproofing wool.

Other reference: Brit. P. 557,600 (Clayton-Edwards): the method consists of a treatment with cold hypochlorite at a pH = 9, adding gradually more and more solid CO_2 (dry ice) ("Negafel" process).

The study of Harris and Frishman, REPORTER, 1948, 52, regarding aspects of chlorination of wool may be recalled here for general information on this problem.

Creaseproofing Textiles—Ethers of Methylolmelamines G, 2, 04

U. S. Pat. 2,454,078
(Du Pont, F. C. McGrew, November 16, 1948)

Melamine is treated with formaldehyde by slowly heating at pH 6.5-6.8 to a temperature of 72-75°C. until a clear solution is obtained whereupon the composition is quickly cooled down. Trimethylolmelamine which crystallizes out is stable at low temperatures only. This compound is further transformed into a trimethyl or triethyl ether by condensing it with the corresponding alcohol, using gaseous dry hydrochloric acid as a catalyst. Aqueous solutions of these ethers are used for impregnating fabrics which have to be cautiously dried and thereupon baked for a short time. The final products are remarkably creaseproof.

References cited by the Patent Office, among others:

U. S. Pat. 2,197,357, 1949 (Ciba): condensates, composed from aminotriazine, aldehyde and lower alcohols, thus alkylated resins, are recommended for producing lacquers and the like.

U. S. Pat. 2,233,327, 1940 (Am. Cyanamid): a lacquer consisting of a castor oil modified alkyd resin and a butylated methylolmelamine resin can be used as a tarnish preventing composition.

Other references:

Creaseproofing finishes in general, prepared from melamine and formaldehyde precondensates were first described in B. P. 466,015, 468,677 and 468,746 (Ciba) and B. P. 458,877 (I.G.); U. S. Pat. 2,371,892 (Am. Cyanamid) suggests the use of ethers of methylolmelamines as finishing agents. The same company describes in U. S. Pat. 2,417,014 the use of melamine formaldehyde condensates, alkylated with polyethylene glycols which products possess higher solubility. Almost at the same time as the present patent was issued, U. S. Pat. 2,454,495 (Ciba) and U. S. Pat. 2,451,153 (Imp. Chem. Ind.) disclosed methods for preparing finishes from etherified methylol melamines. See also U. S. Pat. 2,416,884 (Du Pont), discussed in REPORTER 1947, 338: ethers of alkylolmelamines are suitable for improving the fastness of direct dyeings.

TRADE NOTES • NEW PRODUCTS

• Details of Wet Processing Exposition

Complete details of the forthcoming Textile Wet Processing, Equipment & Supplies Exposition have been disclosed by Arthur Tarshis, Exposition Manager, who asserted that the heightened interest in this exposition promises to make it one of the most important events ever held for the wet processing phase of the textile industry.

Requests for complimentary trade guest tickets to the exposition have reached the executive offices of the show management from over 300 companies whose top level executives will be "among those present", said Mr. Tarshis, and the mounting list of exhibitors, he added, is clearly indicative of the show being a sell-out so far as exhibit space is concerned.

Mr. Tarshis made special mention of the action taken by the American Association of Textile Chemists and Colorists for the display at this exposition of the Association's apparatus and test materials as developed by them and which will be one of the highlights of this exposition. Technicians, members of the Association, will be in attendance at the Association's display.

Special emphasis was placed by Mr. Tarshis on the many new products that will be shown for the first time anywhere at this exposition by processing machinery manufacturers as well as others. He made special mention of new items developed by B. F. Perkins & Sons; H. W. Butterworth & Sons; Van Vlaaanderen Machine Co.; Glasco Equipment Co. and others.

A series of three symposiums are planned to be held during the week of the exposition, at which time authorities on their subjects will discuss all phases of the wet processing industry. These symposiums, Mr. Tarshis said, will be held three mornings during the week of the show. The hours of the show have been set as follows: Monday, June 6th, opening day, the exposition will open its doors at 2 P.M. and will remain open until 10 P.M. These same hours will prevail Tuesday, Wednesday and Thursday. On Friday, June 10th, the show will open in the morning at 10 A.M. and close at 4 P.M.

"Our company, staging eight trade shows a year, has never encountered quite so much enthusiasm in a given industry as that which is being evidenced in this Textile Wet Processing Show," said Mr. Tarshis, "and perhaps the reason for this is to be found in the fact that each and every exhibit is being geared expressly for those who are concerned with the dyeing, bleaching, mercerizing, printing and finishing of textiles. We have turned away a number of applications for booth space from those whose products are concerned with the manufacture of textiles and who feel that they would like to show some of their new things in this 1949 exposition. We have done this because we want to keep this Textile Wet Processing Show just what it is set up to be and divorced from all products that have to do with the making of textiles; we believe that we found a perfect formula for a show of interest to the most forward moving branch of the industry; namely, wet processing." Mr. Tarshis added:

"Last year we had a show of Textile Machinery, Equipment & Supplies in New York that proved to be a splendid success for exhibitors and of tremendous interest to those attending. However, it was a conglomeration of exhibits; a little bit of this and a little bit of that, and no one show, no matter where it is staged, can cover everything completely and satisfy everybody. So far as our show is concerned, we are satisfied to cast our lot with the finishing end of textiles and leave the manufacturing displays to others.

"The absence at this particular time of many companies in the chemical, dyestuff and oil fields is because we have concentrated up to this time in the sale of both space to the processing machinery group and with such a large representation in the show from this particular field, we plan now to bring the show and its many features and advantages to the attention to those who are engaged in other lines, especially chemicals, etc."

• Samuel L. Hayes Makes Hole-in-One

Samuel L. Hayes, Southern Manager, Ciba Company, Inc., Charlotte, N. C., scored a hole-in-one on St. Patrick's Day at the Charlotte Country Club, Charlotte, N. C. Mr. Hayes used a No. 7 iron on the 160 yard No. 11 water hole to make his perfect shot.

Other members of the foursome playing with Mr. Hayes included John L. Crist, Southern Dyestuff Co.; Frank H. Ross of the F. H. Ross Co. and Caldwell McDonald.

According to the other members of the foursome, it was a beautiful shot which hit on the green and dribbled right in the cup.

• Van Vlaanderen to Make Tricot Pre-Setting Machine

A machine to pre-set rayon tricot fabrics has been developed by American Viscose Corporation's textile research department, and will be manufactured by the Van Vlaanderen Machinery Company. It is said to eliminate the expensive tacking and untacking of the selvages, now done to prevent the setting of the curl in the edges during dyeing.

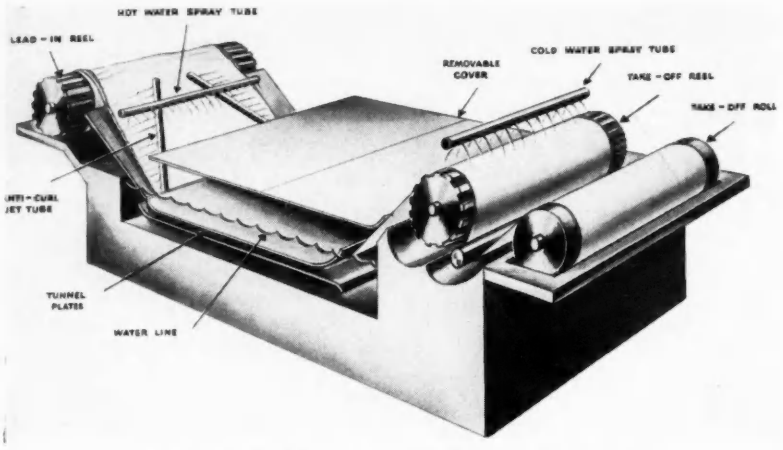
The machine is expected to provide added impetus to the tricot manufacturing industry by increasing the percentage of first-quality goods and by increasing the acceptance of tricot fabrics by the cutting trade. It is said to result in straight course lines, thereby eliminating the expense of straightening now required, and prevents "crow's feet" and crease marks. Other advantages are said to be control of stability of acetate rayon tricot, improved hand and the knitting of much longer lots, which may in turn be dyed continuously.

Sprays of boiling water directed toward the edges of the fabric uncurl them and keep them uncurled until the goods move between two parallel steel plates for the setting process. Coincident with the sprays directed toward the edges, a third hot spray is directed downward onto the center section of the fabric to lubricate its motion over the inclined steel entry plate. A cold spray plays across the entire width of the cloth as it emerges from between the plates to complete the setting.

The small machine built by Avisco's research department at Marcus Hook, Pa., will process 900 linear yards of acetate rayon an hour and the commercial machine being built by Van Vlaanderen is expected to handle 2500. Even the small machine, it was pointed out, can pre-set the output of sixty high-speed tricot knitting units.

The commercial machine is said to be particularly adapted for use by dye houses finishing big lots of tricot fabrics. The over-all size of the machine will be fifteen feet long and about sixteen feet wide so that it can accommodate full-width tricot goods. To enable it to handle a wide variety of textile chemicals, Van Vlaanderen plans to build it of stainless steel. Thus, it is believed that the machine may be used to pre-set viscose rayon tricot as well as acetate rayon goods. Experiments are under way with a view to using it also on nylon fabrics.

Viscose yarn will require longer submersion in boiling water than acetate rayon, and it is expected that the presetting of nylon will take even longer.



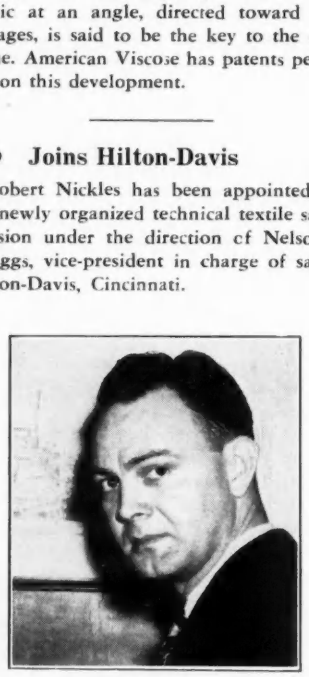
Tricot Pre-Setting Machine to be Made by Van Vlaanderen

With these fabrics as well as different constructions in mind, the machine is equipped wtih variable speed control of the rollers. This permits short, medium or long immersion in the bath and also both the use and avoidance of tension.

Development of the machine is the result of two years' experimental work by Avisco's textile research department at Marcus Hook. The idea of using sprays of boiling water and playing them on the fabric at an angle, directed toward the selvages, is said to be the key to the machine. American Viscose has patents pending on this development.

• Joins Hilton-Davis

Robert Nickles has been appointed to the newly organized technical textile sales division under the direction of Nelso S. Knaggs, vice-president in charge of sales, Hilton-Davis, Cincinnati.



Robert Nickles

Mr. Nickles has moved to Cincinnati from Charlotte, N. C., where he was engaged for the past several years as a textile printing technician. A native of Greenwood, S. C., Mr. Nickles was graduated from Erskine College in 1937. Subsequently he was associated with the Rock Hill Printing and Finishing Company until 1941 when he became an inspector of textile materials for the U. S. Ordnance Department. From July 1943 until February 1946 he served in the United States Naval Reserve as an Ensign.

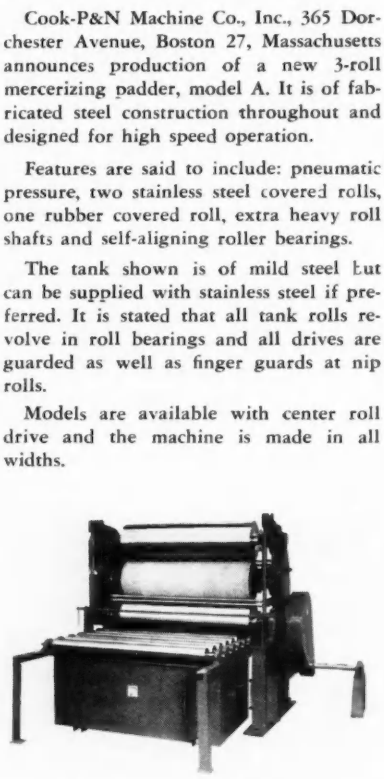
• New Mercerizing Padder

Cook-P&N Machine Co., Inc., 365 Dorchester Avenue, Boston 27, Massachusetts announces production of a new 3-roll mercerizing padder, model A. It is of fabricated steel construction throughout and designed for high speed operation.

Features are said to include: pneumatic pressure, two stainless steel covered rolls, one rubber covered roll, extra heavy roll shafts and self-aligning roller bearings.

The tank shown is of mild steel but can be supplied with stainless steel if preferred. It is stated that all tank rolls revolve in roll bearings and all drives are guarded as well as finger guards at nip rolls.

Models are available with center roll drive and the machine is made in all widths.



Cook-P&N Mercerizing Padder

• E. F. Drew Sales Representative

A. G. Fisher, Jr. has recently been appointed Southeastern sales representative for E. F. Drew & Co., Inc. In this capacity he will be responsible for sales and services of Drew's textile chemicals, detergents, finishing agents, sulfonated oils and textile specialties throughout the territory.

A. G. Fisher, Jr.

Before joining Drew, Mr. Fisher was assistant superintendent of the finishing plant of Dan River Mills. Previously he has been connected with several leading Southern textile mills. He is a graduate of Clemson College. He will make his headquarters at the Greenville office of E. F. Drew & Co., Inc.

• New Laboratory Lamp

A laboratory lamp with four interchangeable lamp tubes for long and short ultra-violet, white and north sky quality light is featured in *Laboratory Equipment Bulletin No. 107* recently released by Will Corporation, Rochester, suppliers of laboratory apparatus and chemicals.

A new comparator set for Ehrlich urobilinogen determination is announced and a portable, electric, direct-reading viscosimeter is described. Copies of the bulletin are available from the company upon request.

• Concentration Indicator

A new model Solu-Bridge for reading directly the concentration of soda ash solutions in wool scouring baths has been announced by Industrial Instruments, Inc., 17 Pollock Avenue, Jersey City 5, N. J. The model RD-B8 Solu-Bridge covers the range 5-50 lbs. of soda ash per 100 gallons, and has a manual temperature compensator range of 64-190°F. Conductivity cells for use in conjunction with this Solu-Bridge are available in a number of varieties for laboratory and plant applications.

(Additional Trade Notes on Page 356)

Proceedings of the
American Association of Textile Chemists and Colorists

Copyright, 1949, American Association of Textile Chemists and Colorists

April 18, 1949

National Officers of the Association

President
HENRY F. HERRMANN
General Dyestuff Corp.,
435 Hudson Street, New York 14, N. Y.

Vice-Presidents
C. NORRIS RABOLD
The Erwin Cotton Mills Co
Cooleemee, North Carolina
JOHN N. DALTON
Pacific Mills, Lawrence, Massachusetts

Treasurer
WILLIAM R. MOORHOUSE
National Aniline Division, Allied Chemical & Dye Corp., 150 Causeway Street, Boston 14, Massachusetts

Secretary
HAROLD C. CHAPIN
Lowell Textile Institute, Lowell, Massachusetts

Founder
LOUIS A. OLNEY
(Deceased)

Chairman of the Research Committee
J. ROBERT BONNAR
General Dyestuff Corp.,
435 Hudson Street, New York 14, N. Y.

Director of Research
HAROLD W. STIEGLER
Lowell Textile Institute, Lowell, Massachusetts

Councilors

Representing Sections

Rhode Island: GEORGE H. WOOD, JR., RAYMOND W. JACOBY, RALPH F. CULVER.
Philadelphia: ONSLOW B. HAGER, M. H. KLEIN, FREDERICK V. TRAUT, LLOYD O. KOONS, WALTER F. FANCOURT, 3rd.
New York: WINN W. CHASE, WILLIAM A. HOLST, JR., FRANCIS S. RICHARDSON, CHARLES W. DORN, HERMAN E. HAGER, HERMAN E. WILDE.
Northern New England: KENNETH R. FOX, GEORGE O. LINBERG, C. WENDALL LEVER.
Piedmont: JOHN B. NEELY, WYSS L. BARKER, LELAND G. ATKINS.
Southeastern: A. KEMPTON HAYNES, WALTER M. SCOTT.
South Central: JACK ANDERSON.
Mid-West: ELMER F. SMITH, GORDON M. MARKLE.
Western New England: HAROLD H. TAYLOR
Hudson-Mohawk: ALBERT E. HERRMANN, JR.

Past Presidents
ELVIN H. KILLHEFFER, P. J. WOOD, WILLIAM H. CADY, ALBAN EAVENSON, CARL Z DRAVES, THOMAS R. SMITH, WILLIAM D APPEL.

Standing Committees of the Council and their Chairmen

Executive Committee on Research
J. ROBERT BONNAR, *Chairman*

Publicity
PAUL J. LUCK, *Chairman*

Conventions
KENNETH H. BARNARD, *Chairman*

Appropriations
WILLIAM R. MOORHOUSE, *Chairman*

Constitution and Bylaws
HAROLD C. CHAPIN, *Chairman*

Membership and Local Sections
JOHN N. DALTON, *Chairman*

Corporate Membership
LEONARD S. LITTLE, *Chairman*

Publications
PERCIVAL THEEL, *Chairman*

Technical Programs
ARTHUR W. ETCHELLS, *Chairman*

Local Sections and their Officers

Northern New England Section

Chairman
FRANK J. O'NEIL
Pacific Mills
Lawrence, Massachusetts

Secretary
AZEL W. MACK
Dexter Chemical Corp., 581 Boylston St.,
Boston 16, Massachusetts

Vice-Chairman — RALPH E. HALE
Treasurer — MARTIN H. GURLEY, JR.

Rhode Island Section

Chairman
ROBERT W. JOERGER
Franklin Process Co., 546 Eddy St., Providence, Rhode Island

Secretary
EMORY A. RICHARDS
Airedale Worsted Mills, Inc., 1 Main Street, Woonsocket, Rhode Island

Vice-Chairman — ELLIOT BROADBENT
Treasurer — ROBERT R. FARWELL

New York Section

Chairman
CHARLES W. DORN
J. C. Penney Co., 330 West 34th Street, New York 1, N. Y.

Secretary
NORMAN A. JOHNSON
American Dyestuff Reporter, One Madison Ave., New York 10, N. Y.

Vice-Chairman — PAUL J. LUCK
Treasurer — JOHN H. HENNESSEY

Philadelphia Section

Chairman
JAMES DIXON
Calco Chemical Division, American Cyanamid Co., 401 N. Broad Street, Philadelphia, Pennsylvania

Secretary
THOMAS H. HART
Hart Products Corp., P. O. Box 5020, Philadelphia 11, Pennsylvania

Vice-Chairman — RICHARD B. STEHLE
Treasurer — A. E. RAIMO

Piedmont Section

Chairman
PELHAM EUGENE SMITH
Riegel Textile Corp.,
Ware Shoals, South Carolina

Secretary
EDWIN A. BRIGGS
Southern Franklin Process Co.,
Greenville, South Carolina

Vice-Chairman — ROBERT H. SMITH
Treasurer — R. HOBART SOUTHER

South Central Section

Chairman
WILBUR K. NEWMAN
Peerless Woolen Mills, Rossville, Georgia

Secretary
HOWARD P. LOVELESS
Crystal Springs Bleachery, Chickamauga, Georgia

Vice-Chairman — JOSEPH H. O'NEIL
Treasurer — CHARLES GORDON

Mid-West Section

Chairman
JOSEPH H. JONES
Phoenix Dye Works, 1963 Southport Ave., Chicago 14, Illinois

Secretary
WILLIAM BOYD, JR.
Ciba Company, Inc., 325 W. Huron St. Chicago 10, Illinois

Vice-Chairman — ELLIOTT MORRILL
Treasurer — EDWARD LARSON

Southeastern Section

Chairman
C. RUSSELL GILL
Southern Sizing Co., P. O. Box 143 Atlanta, Georgia

Secretary
S. JACK DAVIS
Callaway Mills, LaGrange, Georgia

Vice-Chairman — HOWARD M. WADDLE
Treasurer — ADAM FISHER, JR.

Western New England Section

Chairman
J. EDWARD LYNN
American Cyanamid Company, Stamford, Connecticut

Secretary
EDWARD A. MURRAY
Deering Milliken Research Trust, Stamford, Connecticut

Vice-Chairman — RAYMOND J. CAREY
Treasurer — ROBERT N. BROWNLEE

Pacific Coast Section

Chairman
FRANK P. BRENNAN
U. S. Testing Company, 1236 Maple Ave., Los Angeles, California

Secretary
H. A. DES MARAIS
General Dyestuff Corp., 37 Clementina St. San Francisco 5, California

Vice-Chairman — BENJAMIN O. RACE
Treasurer — SIDNEY SPRINGER

Hudson-Mohawk Section

Chairman
JACK EPELBERG
Cluett, Peabody & Co., 117th St. at 7th Ave., North Troy, New York

Secretary
WILLIAM A. NELSON
Ritter Chemical Company, Inc., 403 W. Main St., Amsterdam, New York

Vice-Chairman — DAVID O. HAMER, JR.
Treasurer — IRWIN J. SMITH

Student Chapters

LOWELL TEXTILE INSTITUTE
NORTH CAROLINA STATE COLLEGE
PHILADELPHIA TEXTILE INSTITUTE
NEW BEDFORD TEXTILE INSTITUTE
GEORGIA SCHOOL OF TECHNOLOGY
CLEMSON COLLEGE
BRADFORD DURFEE TECHNICAL INSTITUTE

GENERAL RESEARCH COMMITTEE MEETING

THE 158th meeting of the General Research Committee was held at the Hotel New Yorker in New York, Friday, March 25, 1949.

Chairman J. Robert Bonnar called the meeting to order at approximately 3 p.m., following the close of an extended meeting of the Council.

Director of Research

Dr. Stiegler, reporting for the Research Group at Lowell, referred to the activities for the Wash Fastness Committee studying the capacity of the Launder-Ometer because of the suggested changes in the jars. He also reported that the small instrument has been further improved with cooperation from Atlas Electric Devices. There has been further cooperation with the Fire Resistance Committee on the flammability instrument and also with the Water Repellency Committee on the raintester. He also read a report from Martin H. Gurley which reported progress in comparative evaluation of the two competitive tests for evaluating crease resistance. There should be a report from this committee at the next meeting.

Fastness to Washing

Mr. Seibert then reported for the Committee on Fastness to Washing and developed the fact that the use of the tubes which were discussed at the last meeting unfortunately indicated that the capacity of the Launder-Ometer would be cut to about ½ the capacity at present. Because of the cost of the tubes, their weight, and reduction in capacity, new experiments are being run in the expectation of eliminating these disadvantages. He reported further that a committee is now looking for standard fabrics to be used as test controls for further tests, He also reported that the committee has been advised that rubber balls of improved quality are now available. It may be recalled that they were not available during the war. Some tests will be made with the rubber balls in an effort to learn if they can be used to advantage compared with the metal balls presently specified.

Fastness to Light

W. A. Holst reported for the Committee on Fastness to Light that the National Bureau of Standards have sent out 150 sets of papers and standards and will take care of a balance of over 200 requests as rapidly as the production of faded standards will permit. There is no report at this time on the G. E. Totalizing Photometer.

A comparative exhibit of faded swatches of A.A.T.C.C., British and German light fastness standards is being circulated among committee members for critical evaluation. On a prelimianary basis it appears to some of the committee that the A.A.T.C.C. standards possess advantages over the European standards in better gradation among the various levels of fastness. A more considered report may be expected at the next meeting.

Non-Woven Fabrics

K. H. Barnard reporting for the Committee on Non-Woven Fabrics reported on a joint meeting with Committee D-13 of A.S.T.M. It is evident that there is a great deal more interest in these types of fabrics and there will be more producers and more equipment as time goes on. The joint meeting discussed fastness and methods of testing, with the indication that A.A.T.C.C. methods will probably be adopted with some possible revision for the type of fabric.

Chlorine Retention

A. W. Etchells reporting for the Committee on Chlorine Retention stated that his committee has completed many tests on rayon fabric using five different resins and will now investigate several chlorine treatments. After the chlorine treatments have been completed the fabrics will be tested at various temperatures and for different times on the Suter tester. A tentative approach has already been agreed upon within the committee and confirming tests to determine the duplicability will be run off. There is a possibility that a report will be ready by June.

Insect Pests

H. E. Wilde reporting for the Committee on Insect Pests stated that the report previously rendered had to be changed only in minor details. He then referred to the generally unsatisfactory wool washing tests which precipitated general discussion. Chairman Bonnar expressed the opinion that the wool committee may well be reactivated to consider washing tests as well as water repellency tests. In this connection Dr. Stiegler referred to the cooperative work at Lowell with the National Association of Wool Manufacturers, who are attempting to simplify testing procedures.

Nomenclature and Classification

Dr. C. Z. Draves reporting for the Committee on Nomenclature and Classification announced fair agreement among the committee on terminology for the various steps in reporting fastness tests, most of which were acceptable but some of which were the cause of considerable discussion. For example, a term for the highest degree of light fastness corresponding to Grade No. 8 has not yet been decided upon as four different terms are proposed. These are:

"Maximum"
"Outstanding"
"Superior"
"Superlative".

It was generally agreed, following a motion to that effect, that the Research Committee as a whole should have an opportunity to vote instead of having this finally decided upon in the sub-committee.

Consumer Goods

L. S. Little represented the A.A.T.C.C. at a meeting of a Consumers Goods Committee of A.S.A. He stated that at that meeting the American Viscose Corporation expressed a willingness to give A.S.A. their Crown Testing Plan of rating dyed viscose materials. The proposal will be taken under advisement by A.S.A., and an opinion was expressed that there would

be some interest to note that if any decision is reached A.A.T.C.C. tests will at least be representative of the plan as it might be set up.

Miscellaneous Reports

Although no formal report was made James R. Redmond submitted a status report of the work of the committee on Fire Resistant Materials. This report indicates that much work is under way devised to facilitate correlation of results which may be obtained on six different types of testing equipment. It is expected that interesting progress will be reported at the next meeting of the Research Committee.

Although no formal report was made Leslie Christison, Chairman of the Committee on the Analysis of Fiber Mixtures, by letter stated that the committee is at work studying various methods for specific fibers and blends. It is probable from the extent of the work listed that some time will elapse before a final report will be available.

In response to a question Kenneth Barnard reported that the perspiration tester should shortly be available, that the matter of final price is not quite settled, but that an instrument company in Orange, New Jersey, is preparing to take over the manufacture of the instrument.

Chairman Bonnar referred to a letter which had been received from Dr. Fargher of Shirley Institute in connection with an instrument for testing resistance of dyed acetate fabrics to gas fume fading, and also referred to other problems which have come up in this connection, stating that these have been turned over to Mr. Scull for consideration by his committee.

After announcing that the next meeting would be held June 9, Chairman Bonnar adjourned the meeting at about 4 p.m.

Those present were:

J. R. Bonnar, Chairman
H. W. Stiegler, Research Director
G. H. Schuler, Secretary

E. C. Atwell	G. O. Linberg
K. H. Barnard	L. S. Little
W. H. Cady	A. R. Macormac
H. C. Chapin	O. F. Marks
W. E. Coughlin	E. Meili
J. B. Dick	J. E. Norton
C. Z. Draves	A. D. Nute
A. W. Etchells	W. F. Prien
H. E. Hager	C. A. Seibert
O. B. Hager	R. H. Souther
A. K. Haynes	C. A. Sylvester
W. A. Holst	H. H. Taylor
R. W. Jacoby	P. Theel
N. A. Johnson	F. V. Traut
J. H. Jones	F. Tripp
A. J. Kellner	F. R. Tripp
D. P. Knowland	H. E. Wilde
	P. J. Wood

GEO. H. SCHULER, *Secretary*

RESOLUTION ON LOUIS ATWELL OLNEY

Passed by Council on March 25, 1949

WHEREAS, God in his infinite wisdom has called Louis Atwell Olney to his eternal rest, and

WHEREAS, he was the founder, first president and president emeritus of the American Association of Textile Chemists and Colorists, and for twenty-five years chairman of its research committee and the first recipient of the Olney Medal, and

WHEREAS, during the entire history of the Association, his conduct was marked by extreme modesty, unfailing kindliness and unquenchable enthusiasm for everything that would further the interests of the Association, and

WHEREAS, the memory of his unselfish devotion to duty will ever remain in the hearts of all who were privileged to know him, providing them with encouragement and inspiration,

BE IT THEREFORE RESOLVED that the American Association of Textile Chemists and Colorists record upon its minutes this expression of our high regard for his faithful service to this Association, his accomplishments as a scientist and as an educator, and for his never-failing interest in research, and

BE IT ALSO RESOLVED that the name of Louis A. Olney shall appear with the title "Founder" on lists of officers of the Association hereafter published in the *Year Book* and *Proceedings*, and

BE IT FURTHER RESOLVED that a copy of this resolution be sent to the family of our departed friend.

"MAY LIGHT PERPETUAL SHINE UPON HIM"

March 25, 1949.

Philadelphia Section

A MEETING of the Philadelphia Section was held on March 11th in the English Room of Kugler's Restaurant in Philadelphia.

Chairman James Dixon read the Memoriam to Dr. L. A. Olney as written by our National President Henry F. Herrmann and published in the *American Dyestuff Reporter*. He also called attention to the death of William V. Baker and Mrs. Emil Seasongood, the wife of one of our Section's prominent members. He called for a minute of silence in memory of their passing.

Walter F. Fancourt, 3rd, gave a very enlightening report on the progress of his 1949 Convention Committee and everything points to a real "don't miss it" Convention.

W. O. Neeb, Chairman of the Program Committee, introduced Henry E. Millson, Calco Chemical Div. of the American Cyanamid Company who spoke on "Studies of Wool Dyeing; Effect of Metals in Tippy Dyeing."

Members and guests at the dinner numbered 158 while 178 attended the technical session.

Respectfully submitted,

THOMAS H. HART, *Secretary*

CALENDAR

WESTERN NEW ENGLAND SECTION
Meeting: May 20

NEW YORK SECTION
Meeting: May 6.
Outing: June 17.

PHILADELPHIA SECTION
Meetings: April 22, May 20, September 16, November 11 (Kugler's, Philadelphia).
Outing: June 10.

PIEDMONT SECTION
Meetings: June 24, 25, 26 (Ocean Forest Hotel, Myrtle Beach, S. C.), November 5 (Charlotte Hotel, Charlotte, N. C.)

HUDSON-MOHAWK SECTION
Meetings: May 20, September 16, November 18.
Outing: June 17.

PACIFIC COAST SECTION
Meetings: May 13 (Los Angeles); May 17 (Portland).

RHODE ISLAND SECTION
Meeting: April 22.

SOUTHEASTERN SECTION
Meeting: April 23 (Ralston Hotel), Columbus, Ga.).

MID-WEST SECTION
Meeting: May 7 (Hotel Schroeder, Milwaukee).
Outing: June 18 (Lake Lawn, Delavan, Wis.).

NORTHERN NEW ENGLAND SECTION
Meeting: April 29 (Lowell Textile Institute).

COUNCIL
Meetings: June 9, Sept. 9, Dec. 9.

RESEARCH COMMITTEE
Meetings: June 9, Sept. 9, Dec. 9.

NATIONAL CONVENTIONS
1949: October 13 to 15, Chalfonte-Haddon Hall, Atlantic City.
1950: October 19 to 21, Statler, Boston.
1951: October 18 to 20, Statler, New York.

ATLANTIC CITY CONVENTION
October 13-14-15, 1949
"Education through Association"

Technical Program

GENERAL TECHNICAL SESSION. — Thursday, October 13, 2 P.M.-5 P.M.

Three technical papers of general interest will be presented by well known leaders in textile research and should prove to be of importance to everyone, be he engaged in education, research, development or mill operation.

GROUP MEETINGS.—Friday morning, October 14, and Saturday morning, October 15.

Only two group meetings will be held simultaneously in order to avoid some of the confusion which has taken place in the past.

The Friday groups will be: Non-Cellulosic, Auxiliaries and Testing.

On Saturday morning there will be meetings of the Hosiery and Cellulosic groups.

On Saturday afternoon will be staged a new feature, provided enough interest is shown by the membership. This will consist of a question and answer period—the questions to be submitted in advance and answered by a qualified expert in the field of activity covering the question. These questions may concern any phase of textile processing and should be submitted as soon as possible so that the necessary arrangements may be made.

A chairman will be selected for each group, who will conduct the meetings and lead the discussion periods. Each of the group sessions will consist of four papers, each followed by a discussion period. An invitation is hereby extended to all A.A.T.C.C. members and to others engaged in fields of kindred interests in the above group classifications to contribute papers. Instructions for contributed papers follow.

Cellulosic Fibers—Cotton, rayon, and cellulose acetate or mixtures of these fibers are to be covered in this group. Papers are desired on the preparation for dyeing, printing and finishing; on research on fiber properties; and on the fundamentals of dyeing.

Non-Cellulosic Fibers—This group will concern itself with wool and other protein fibers, nylon and any other non-cellulosic synthetics, together with blends of these fibers. The papers for this group should be essentially the same as those for the cellulosic group.

Hosiery — The Philadelphia Section, which embraces Reading, is a very large hosiery center. It is expected, therefore, that there will be a very large attendance from this group alone and that the activity in this district should be an added attraction for our southern friends. Virgil Hartquist has already been appointed chairman of this group and has in mind a very attractive program. Papers are invited on any and all problems involved in hosiery processing.

Auxiliaries and Testing Group—These groups have been combined into one general group because they overlap at numerous points. In the auxiliaries field, papers are desired showing the development of new products, the better use of old products, new application and methods of evaluation. In the testing section, papers are solicited on new procedures and equipment, and on the evaluation of existing methods. The possibility of correlating test methods with consumer end use would be especially welcome.

Contributed Papers.—The following are the regulations governing contributed papers:

1. Anyone desiring to contribute a paper should notify Arthur W. Etchells, The Hellwig Dyeing Corp., Delaware Avenue and Comly Street, Phila. 24, Pa., *immediately,* giving the title of the proposed paper and the group in which it is to be presented. The amount of time estimated for the presentation of the paper should also be given. This should be from 30 to 45 minutes.
2. As soon as the number of papers available in each group is known, a selection will be made and the contributors will be advised as to whether their papers have been accepted. This must be done in the near future in order to assure the best possible arrangement of the program.
3. An abstract of the paper will be required well in advance of the program. Notification of the dead-line will be given later.
4. All papers in complete form ready for publication in the *American Dyestuff Reporter* must be available at the Convention. Earlier submission would be greatly appreciated.
5. Papers must not be primarily of an advertising or promotional character. However, the subject matter may treat of commercial products, machinery, instruments, or processing procedure of a commercial nature, provided that they are treated from a technical viewpoint.
6. The Technical Program Committee must be the sole judge as to which papers are to be accepted, but every effort will be made to include all suitable contributions in the program.

Suggestions.—Many members may have valuable ideas for speakers or papers which can be presented at the group meetings. Any such suggestions will be welcome. These, too, should be sent to Arthur W. Etchells.

The Technical Program Committee consists of the following members:

Dr. M. A. Dahlen, K. H. Barnard, Dr. F. Dannerth, Dr. H. E. Hager, Dr. S. Williams, R. W. Jacoby, H. Boxser, Dr. R. B. Seymour, Dr. V. B. Holland, Dr. W. Scott, A. W. Etchells, *Chairman.*

—♦ ♦—

Membership Applications

SENIOR

Richard P. Cox—Supt., B. E. Cox Leather Co., Peabody, Mass. Sponsors: D. W. Symmes, L. N. Putnam.

John M. Culp—Engr., Myles Salt Co., Charlotte, N. C. Sponsors: T. R. Smith, C. H. Morris.

John L. Dudley—Colorist, Rock Hill Printing & Finishing Co., Rock Hill, S. C. Sponsors: D. W. Costner, W. H. Scott.

Vadim V. Fedorov—Chemist, General Dyestuff Corp., New York, N. Y. Sponsors: C. Z. Draves, F. F. Jacobs.

Ralph K. Fisher—Mgr. & Supt. Worsted Yarns Mfg., Ramsdale Yarns, Inc., Long Island City, N. Y. Sponsors: C. W. Dorn, J. R. Bonnar.

Gus A. Harris—Colorist, New London Textile Print Works, New London, Conn. Sponsors: C. F. Stokes, T. Larsen.

Reinhart Kriewall—Supt., Evenknit Hosiery Mill, Bay City, Mich. Sponsors: P. Ruhl, L. Hoehn, Jr.

Edmund W. Lowe—Tech. Director, The Edwal Laboratories, Inc., Chicago, Ill. Sponsors: A. J. Feit, G. M. Markle.

Elliott B. Plummer—Chief Chemist, Cook Yarn Dye Mills, Inc., Rumford, R. I. Sponsors: L. Palizza, J. A. Harley.

Francis J. Potter—Tech. Demonstrator, Monsanto Chemical Co., Boston, Mass. Sponsors: S. F. Sylvester, G. O. Linberg.

Charles Silverman—Converter, Burlington Mills Corp., New York, N. Y. Sponsors: F. Hall, J. G. Stass.

Sidney Wang—Chg. of Textile Testing Div., Consumer Union of U. S., New York, N. Y. Sponsors: L. Kapelsohn, M. Schuster.

JUNIOR

Alvin Barg—Research Chemist, Aldon Rug Mills, Lenni Mills, Pa. Sponsors: C. Monego, P. Theel.

Thomas G. Tomasi—Chemist, Interchemical Corp., Paterson, N. J. Sponsors: T. Rusticus, H. H. Bestehorn.

Milton J. Williams—Dyer, Lowell Top Dyeing & Print Works, Dracut, Mass. Sponsors: C. L. Howarth, C. A. Everett.

ASSOCIATE

William L. Anderson—Technical Service, Eimer & Amend, New York, N. Y.

Joseph H. Padgett—Trainee, Dyeing & Finishing, Stonecutter Mills Corp., Spindale, N. C.

Al Rappaport—Eastern Sales Mgr., Lake Chemical Corp., New York, N. Y.

Albert E. Stutzke—Shipping Dept., Foreman, Globe Dye Works Co., Philadelphia, Pa.

STUDENT

John D. Farrell—Philadelphia Textile Inst. Sponsor: P. Theel.

Wesley L. Prince, Jr.—Philadelphia Textile Inst. Sponsor: P. Theel.

Robert E. Sebra—Philadelphia Textile Inst. Sponsor: P. Theel.

Mark Chookazian—Rhode Island School of Design. Sponsor: H. B. Sturtevant.

John B. Ducharme—St. Hyacinth Textile School. Sponsor: G. R. Boule.

Louis D. Erbstein—Georgia Inst. of Technology. Sponsor: J. L. Taylor.

WALTER E. HADLEY ELECTED HONORARY MEMBER

WALTER EASTMAN HADLEY, BTC, has been unanimously elected to honorary membership in the American Association of Textile Chemists and Colorists. Mr. Hadley is a Charter Member of the organization and served for seven years as its first National Secretary. He is the author of several technical articles pertaining to the dyeing and finishing industry which were published in the *American Dyestuff Reporter*. He is a graduate of the Lowell Textile Institute and upon graduation remained for 4 years as instructor in the Chemistry Department of his Alma Mater. He left school to accept a position as Research Chemist of The Roessler and Hasslacher Chemical Company, remaining with them for 4 years and leaving to go with The Clark Thread Company as Chief Chemist. It was during this latter period that he became active in the A.A.T.C.C. In 1934 he joined The Standard Coosa Thatcher Company as Superintendent of Dyeing, Bleaching and Mercerization and remained with them for 10 years whereupon he retired.

Mr. Hadley now resides in Hancock, New Hampshire, where he is very active in church circles as well as being Vice President of the Hancock Historical Society.

WALTER E. HADLEY

Mr. Hadley examines the products of his hobby—woodcarving.

Mid-West Section

THE winter meeting of the Mid-West Section was held at the Bismarck Hotel, Chicago, Illinois, on February 26, 1949.

The afternoon meeting was called to order at 2:50 P.M., Elliott Morrill, Vice-Chairman presiding. Approximately 100 members and guests were present. The afternoon speaker was R. G. Thomas of Rohm & Haas Company, who delivered a paper entitled "Resin Finishing of Textile Fabrics." Mr. Thomas augmented his discussion with samples of various types of fabrics to illustrate the effects of resin finishes.

Dinner was served at 7:30 P.M., with 128 members and guests present.

The Chairman, Joseph Jones, announced the tragic and untimely passing of Professor and Mrs. Louis A. Olney, due to an automobile accident. Condolences were sent to the family.

It was announced that the Annual Outing would be held at Lake Lawn, Delavan, Wisconsin, June 18, 1949.

The following committees were appointed:

Corporate Membership

Gordon M. Markle, *Chairman;* J. Gordon Stott, Frank J. Acker, Frank F. Myers.

Membership

Louis Hoehn, *Chairman;* Leroy C. Voss, Arthur A. Coleman, Morton H. Wertheim, George B. Willgeroth.

Registration

Edward C. Eaton, *Chairman;* Leonard J. Pietras, Kirk P. Ferguson, Henry A. Wolk.

Publicity

Elmer F. Smith, *Chairman.* Will select his assistants.

Outing

L. B. MacFarland, *Chairman;* Arthur T. Brainerd, Samuel Klein, A. G. Alexander, Victor C. Braun, David Anderson.

Technical

Bertil A. Ryberg, *Chairman;* Clarence W. Wille, Dr. Robert F. Brown, Paul Soderdahl, Wm. F. McNamara, Dr. Leonard J. Armstrong, Merrill G. Morris.

Sectional Advisory Research Committee

Arthur I. Hultberg, *Chairman;* Alfred J. Olson, John C. Moertel, John E. A. Schroder.

Mr. Jones introduced the speaker of the evening, Dr. O. M. Morgan of National Aniline Division, Allied Chemical & Dye Corporation, who delivered a paper entitled "Low Temperature Wool Scouring with a Synthetic Detergent." Dr. Morgan's talk was illustrated with several charts.

The meeting was adjourned at 9:45 P.M.

Respectfully submitted,
GEORGE B. CHABOT,
Secretary, Pro Tem.

Western New England Section

THE February meeting of the Western New England Section was held on Friday, the 25th, at the Fairway Restaurant in Bridgeport, Connecticut. Attendance totalled 43 members and guests.

Jackson Woodruff of American Viscose Corporation spoke on "Viscose Dyeing." Mr. Woodruff discussed various methods of viscose rayon dyeing and also included in his talk the discussion of fabric stabilization.

Respectfully submitted,
EDWARD A. MURRAY, *Secretary*

—♦ ♦—

NNE Section to Meet on April 29th

THE next meeting of the Northern New England Section will be held on April 29th at 6:00 P.M. at the Lowell Textile Institute. The program which has been arranged by the Student Chapter at the Institute is as follows:

6:00 P.M. Discussion by the students on "Liberalized Education versus Specialized Education."

6:30 P.M. Dinner.

7:30 P.M. The following papers will be presented by students:

"An Investigation of the Swelling Effects of Ammonium Thiocyanate on Textile Fibers" by George Hochschild.

"An Investigation of the Effects of Phosphates in the Dyebath" by Robert J. Peirent, Robert Morrison and Lawrence F. McMahon.

The laboratories of the A.A.T.C.C. will be open all day to give members an opportunity to inspect the research headquarters.

Reservations for the dinner should be made with:

Edward B. Bell
Textile Aniline & Chemicals Co.
49 Blanchard Street
Lawrence, Massachusetts

—♦ ♦—

Lowell Textile Institute Student Chapter

AT THE regular meeting of the Lowell Textile Institute Student Chapter on March 9, Lawrence C. Gardner, Chairman, reported on the meeting of the Intercollegiate Chemical Society in Boston on March 8, at which arrangements were made for automatic membership of all members of the Chapter, and for representation on the Board of Representatives.

At a seminar on March 15, Dr. Ronald E. Glegg of the Chemistry Department, Lowell Textile Institute, spoke on "Nylon and Other Polycondensates."

For the joint meeting with the Northern New England Section on April 29 at the Lowell Textile Institute, the program will consist of a discussion starting at 6:00 P.M. on "Liberalized Education versus Specialized Education"; dinner at 6:30; and papers at 7:30, "An investigation of the Swelling Effects of Ammonium Thiocyanate on Textile Fibers," by R. George Hochschild, and "An Investigation of the Effects of Phosphate in the Dye Bath," by Robert J. Peirent, Robert E. Morrison and Lawrence F. McMahon.

Respectfully submitted,
JOAN L. GREGG, *Secretary*

—♦ ♦—

Meeting and Outing of Mid-West Section Scheduled

THE next meeting of the Mid-West Section will be held on May 7th at the Hotel Schroeder in Milwaukee, Wisconsin.

The Annual Outing will be held on June 18th at Lake Lawn, Delavan, Wisconsin.

—♦ ♦—

Bradford Durfee Technical Institute Student Chapter

THE regular monthly meeting of the B.D.T.I. Student Chapter was held March 10, 1949. Committees on publicity, memberships and program were appointed. A plan for having an annual forum has been accepted. It was voted and passed that the Chapter as a body attend a dinner meeting in Providence, R. I., sponsored by the R. I. Section. On March 25, 1949, 23 members and the faculty advisor attended a dinner meeting at Providence.

Respectfully submitted,
RICHARD P. BARBER, *Secretary.*

Secretaries of Local Sections Should Send Meeting Reports and Technical Papers to the National Secretary

Rhode Island Section—

VICARA—NEW FIBER DERIVED FROM ZEIN*

W. P. ter HORST
General Manager, Fiber Division
Virginia-Carolina Chemical Corp., Taftville, Conn.

1. Introduction

VICARA is *not* a substitute for any of the known fibers. It is *not* an adulterant. It is an individual fiber which "improves the blend". We believe that it adds suppleness to rayon, a down-like texture to wool, absorptiveness to nylon. It presents to fashion and to the textile industry in general new fabric possibilities. Vicara does not supersede other fibers but supplements them. Vicara is unlike the seven fibers now in commercial use in wearing apparel—cotton, viscose rayon, cellulose acetate, wool, silk, nylon and rubber lastex. Since it is made from a protein it exhibits good elasticity and is more like wool than any of the other fibers mentioned; but it is not a synthetic wool.

Protein fibers have always been more valuable than cellulosic fibers. Cotton and rayon sell in the neighborhood of 40c per pound. Wool, cashmere and the like in the finer deniers sell at $2.00 per pound and upwards. This indicates that tensile strength is not *the* determining factor in the value of a fiber. Wool is high-priced because of its resilience, its warmth, its fulling properties and its dyeing characteristics. In textile merchandising, we must appeal to the eye and to the hand, combining utility, wear and reasonable price. Vicara fills a need not satisfied by other fibers, and opens up new fields to the textile chemist and technologist. One way to develop newer and better fabrics is to employ a new and better fiber such as Vicara, which possesses a new combination of important properties.

2. Outstanding Properties of Vicara

Vicara has adequate strength for the usual textile operations and can be made in 100% Vicara yarn or fabric; however, to date, best results have been obtained in blends. Vicara is characterized as follows:

1. Soft, luxurious resilient hand.
2. High modulus of elasticity at low elongations.
3. High work recovery.
4. Low temporary set.
5. Good dyeing with acid as well as alkaline dyes.
6. Good scouring and laundering.
7. Inert to solvents. This includes 70% sulfuric acid, concentrated hydrochloric acid, and strong alkalies.
8. Good dimensional stability.
9. Resistant to dry heat up to 310°F., and to wet heat.
10. Inherently moth resistant.
11. Mildew resistant.
12. Good processing on the cotton and woolen systems.

Previous attempts to produce high grade protein fibers on a commercial scale have failed. Protein fibers as a class have become known as deficient in wet strength, having poor resistance to acids and alkalies, exhibiting high wet elongations, and developing an offensive odor when wet. These defects have been overcome in Vicara.

3. History of Man-Made Protein Fibers

The earliest reference to fibers made from gelatine is in 1894 by Millar. The earliest U. S. patent is No. 611,814. From 1905 to 1907, Todtenhaupt produced fibers from casein which were hard and brittle and of poor durability.

Apparently the work on casein fibers was then abandoned until 1935. In the meantime, rayon had become a commercial fiber mainly as a competitor for silk and cotton. By 1934, nylon had been invented, fortunes had been lost in ramie, and the manufacture of synthetic fibers had become one of the world's principal industries. As a result of studies which began in 1924, A. Ferretti in Italy began production of Lanital, which means "Italian Wool". In this country National Dairy Products Corp. began production of casein fibers in 1940.

The present status of the productive capacity of protein fibers in the world, excluding the United States, is as follows:

1 plant in Italy.
2 plants in Holland
1 plant in the Russian zone of Germany, all presumably tooled for casein fiber production, and none in operation due to shortage of, and high cost of casein.
1 plant in England that produces a casein fiber named Fibrolane.
1 pilot plant in England that produces fiber from peanut protein, called Ardil.

In the United States, Virginia-Carolina Chemical Corporation is the only commercial producer of a protein fiber, the Drackett Company having temporarily removed from the textile market its fiber derived from soybean protein.

4. History of Zein Fibers

Although zein was isolated in 1821 by John Gorham at Harvard University, and casein fibers were well known, apparently zein fibers were not made until 1935, when L. C. Swallen, of Corn Products Refining Company, applied for a U. S. Patent, which was issued in 1939, No. 2,156,929. The duPont Company has been active in research on zein fibers. However, most of the scientific contributions were made by Croston, Evans and Smith at the Northern Regional Research Laboratory of the U. S. Department of Agriculture. The first publication, "Zein Fibers Perparation by Wet Spinning", appeared in December, 1945.

5. History of Vicara

Vicara is the result of many years of research and development. A number of fibrous proteins can be used in textile fiber manufacture, such as casein, soybean protein, cottonseed protein, peanut protein, zein, chicken keratin, egg albumin and gliadin. However, one must take into consideration not only the fiber-forming properties of the protein, but also its availability, uniformity and cost. It is an easy matter to produce protein

* Presented at meeting, Rhode Island Section, February 25, 1949.

fibers in the laboratory. Commercial scale production is exceedingly difficult. Vicara is made from zein, one of the proteins in corn. Zein is as complex as the other proteins, but distinctly different. During the early years we were assisted greatly by Milton Harris Associates, and considerable knowledge was gained from the workers at the Northern Regional Research Laboratory, who had specialized in zein as a raw material for fibers.

A plant in Taftville, Connecticut, was purchased. It had to be retooled, and commercial production of Vicara was started late in 1948.

6. Zein—Raw Material

By virtue of its solubility in alcohol, zein belongs to the group of proteins called prolamines. Zein is isolated from corn gluten by extraction with isopropyl alcohol. The present production of zein in the United States is limited at the present. Potentially some one hundred million pounds of zein are available annually.

7. Zein—Properties

The most important property of zein is the fact that it is a high molecular weight fibrous protein. Zein forms a gel quickly in alkaline solution or dispersion; the amino acids in zein are the same that occur in other proteins; however, zein does not contain, or contains very little cystine, lysine, and tryptophan. Zein is relatively unreactive; it reacts with bases but not with acids.

Since zein does not contain primary amino groups, it is difficult to effectively cross-link the fiber made from it. The available groups for cross-linking are the polypeptide, the amido and the carboxyl groups, which are unreactive. We have acquired this knowledge.

8. Production of Vicara

In general, the production of Vicara resembles the production of viscose rayon. Considerable "know how" has been acquired, and we are striving to acquire a "know why", in order to make a science out of what is now an art. However, science is lagging behind practical development. We cannot always wait for the "know why" to be acquired. Only staple fiber is being produced, although some continuous filament Vicara has been made and shows considerable promise. The process, briefly, consists in making a solution of zein in dilute alkali, followed by extrusion through spinnerettes, coagulation in dilute acid, stretching, and curing with formaldehyde. The process is complicated, requires rigid control. The tow travels some 14 miles from the time it leaves the spinnerette until it is cut to staple.

We are presently manufacturing principally 2, 3 and 4 denier Vicara, which can be cut in any desired staple length from ½" up to 6".

9. Science of Vicara

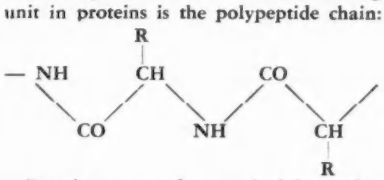
Like all other fibers, Vicara is a high polymer of molecular weight about 40,000. A large number of natural and synthetic high polymers are potential fiber formers. Whether they produce a rubber, a plastic or a fiber depends on the molecular arrangement, and can be altered by relatively small differences in chemical structure. It has been shown by Mark, Harris, and others that high polymers can roughly be divided into three classes:

A. *Rubber-like* materials where the intermolecular reactions are weak and the molecules fit poorly into a lattice.
B. *Fibers* where the intermolecular forces are strong and the molecules fit well into a lattice.
C. *Plastics* which are intermediate between rubbers and fibers.

The fibers can be further divided into:

A. Those where the intermolecular forces are numerous and strong, which result in rigidity and short range of elasticity, such as in cotton, ramie, high tenacity rayon and Fortisan.
B. Those where the intermolecular forces are few but strong, such as in nylon and silk.
C. Those where the intermolecular forces are weak, resulting in flexibility, such as in Vicara, wool, *elastic* nylon and Vinyon.

Wool protein is composed of long flexible molecular chains. This flexibility is the basis of the long range elasticity of wool fibers. Furthermore, wool is cross-linked through the cystine disulphide linkage and in many respects resembles vulcanized rubber, as shown by Harris. Its stress-strain characteristics, its solubility and its swelling are greatly influenced by the extent of cross-linking. Likewise, Vicara, being derived from a protein, zein, consists of coiled flexible polypeptide chains which, after cross-linking with formaldehyde, exhibit properties greatly resembling those of wool. The recurring unit in proteins is the polypeptide chain:



Proteins are made up of alpha amino acids, and differ from each other in the number and type of amino acids present, and in the way in which these are arranged. R may be large or small. In silk R is small, either hydrogen or methyl; hence silk is a strong fiber due to hydrogen bonding, and has relatively little elasticity. On the other hand, in wool (and in Vicara) R is large, the side chains are bulky and comprise 50% or more of the molecular weight; hence these fibers are relatively weak but exhibit good extensibility and elasticity, especially when suitably cross-linked. One of the most valuable properties in a textile fiber is its ability to recover from strain. The protein fibers are tops in that respect.

The two important properties that make wool what it is are:

A. The coiled polypetide chain, cross-linked by means of sulfur.
B. The shape; wool possesses crimp and curl.

It is believed that high resiliency is associated with at least three factors: high modulus at low elongation, high work recovery and low temporary set.

The analogy between vulcanized rubber and wool holds true for Vicara. Unvulcanized rubber becomes brittle when cold and sticky when hot. The vulcanized rubber that we see in tires, which contains only up to 3% combined sulfur, is far superior, not only from the viewpoint of resistance to temperature changes but also in elastic behavior. When the sulfur content is increased up to 20% or higher we obtain hard rubber, which is no longer flexible, because of the large number of cross-links. Goodyear discovered the vulcanization of rubber with sulfur well over 100 years ago. Nothing has taken the place of sulfur. It appears that formaldehyde occupies a position similar to sulfur in the vulcanization of proteins. Cross-linking of fibrous zein molecules with formaldehyde results in fibers of good durability and excellent elastic properties. As in rubber, we must arrive at an optimum state of cure as determined by stress-strain characteristics; the distribution of cross-links is as important as the type and number of cross-links. If the curing operation is not carefully controlled, overcuring may take place, resulting in brittle fibers with low elongations.

10. Vicara—Physical Properties

Vicara is a smooth, soft fiber with subdued luster, and a cream to golden color. The cross section is circular, specific gravity 1.25, dry tenacity 1.0 grams per denier, wet tenacity .5 grams per denier, dry elongation 42%, wet elongation 50%.

TABLE I

Stress-Strain Characteristics

% Elongation	1	2	5	20
Loads in g/d	Modulus			
Vicara, Dry	.33	.47	.66	—
Vicara, Wet	.13	.15	.18	.20
Wool, Dry	.22	—	.46	—
Wool, Wet	.10	—	.35	—
Rubber, Raw	.00003	—	.0002	.0006
Rubber, Gum Stock	.0002	—	.0007	.003
Rubber, Tread Stock	.007	—	.03	.13

Elastic recovery data of Vicara

% Elongation	1	2	5
% Dry Recovery	100.0	100.0	97.5
% Wet Recovery	100.0	100.0	98.0

The ratio of knot to straight tenacity is of a high order. The cross sectional swelling in water, and in dilute acids or alkalies ranging in pH from 2.0 to 10.0, is low, about 20%. Vicara is not thermoplastic; to the contrary it has excellent resistance to dry heat for long periods, up to 310°F, or to higher temperatures for short periods, and to wet heat. Its softening temperature is 450°F. Vicara is not affected by very low temperatures, and exhibits little plastic flow or creep.

STRESS - STRAIN CHARACTERISTICS.—Vicara obeys Hooke's Law up to extensions of 2%, and as shown in Table I has a high modulus at low elongations.

WARMTH.—The warmth of a fabric is largely independent of the fiber but depends on the amount of entrapped air, thickness of the fabric, etc. It is only during wear or service, and upon laundering and dry cleaning, that the type of fiber becomes important. According to tests made on batting by the U. S. Testing Laboratories, Vicara is as warm as wool.

The moisture regain of Vicara is 13% at 65% R.H. and 70°F.; the moisture absorption is 18%, and the moisture retention is 38%, on an "as is" basis. The rate of drying of Vicara is very much like that of wool.

Vicara has no felting properties. The fiber has been so designed that it will not appreciably shrink on dyeing or dry cleaning. Specification fibers have been made with a higher tendency to shrink. These exhibit to some extent "fulling" properties.

Vicara is supplied in various staple lengths, and in deniers of 2, 3 and 4. Table II lists the denier of Vicara vs. its width in microns, as compared with wool.

11. Vicara—Chemical Properties

A. GENERAL. — The approximate amino acids content of Vicara is:

Alanine	10.00%
Leucine and Isoleucine	25.00
Glutamic Acid	30.00
Tyrosine	6.00
Phenylalanine	8.00
Proline	9.00
Cystine	1.00
Methionine	2.50
All Others	8.50

The pH is adjusted to 3.0-4.0 before shipment.

Solubility. Whereas zein is soluble in isopropyl alcohol, Vicara is not affected by this or any other solvent. Solvents for other fibers, calcium thiocyanate, glacial acetic acid, formic acid, phenol, and hundreds of other strong solvents tried, do not affect Vicara. The resistance to acids is high; 70% sulfuric acid, and concentrated hydrochloric acid, do not dissolve or appreciably affect Vicara.

Resistance to Alkalies. Vicara has an amazing resistance to alkalies and is, to our knowledge, the only protein fiber that behaves in this manner. This is shown in Table III.

In view of these remarkable properties, Vicara can be carbonized, mercerized, Sanforized, dyed with acid or alkaline dyes at elevated temperatures. Vicara is not resistant to kier boiling.

Water repellency. The regular grade of Vicara exhibits a fair degree of water repellency which has been built into the molecule, and is resistant to dry cleaning, laundering and dyeing.

The water repellency is pronounced at room temperature, but disappears at elevated temperatures from 60°C. up. As a result, the water repellency does not interfere with scouring or dyeing, and reappears when the fiber is dried. This is an unusual property, to our knowledge not possessed by any other fiber.

The combined formaldehyde in Vicara is approximately 2.5%, of which at least 1.25% is irreversibly bound. Vicara is slow burning but not as slow as wool.

Vicara is not palatable to moths and carpet beetle larvae and is highly mildew resistant. A Vicara fabric which was subjected seven days to a soil burial test lost 10% in strength, whereas a similar cotton fabric completely deteriorated after seven days. After seven additional days of soil burial, Vicara showed only little additional loss in strength and no mildew growth could be detected.

B. BLEACHING.—Vicara needs to be bleached when pure whites or pastel shades are desired. The preferred method of bleaching is a two-bath process as follows: The fabric is entered wet, into a bath, containing 1½% sodium chlorite at pH adjusted to 4.0 with acetic acid, also containing .1% suitable wetting agent. Fiber to liquor ratio 1:30, temperature 70°C, time one hour. The fabric is then washed and treated with a solution containing .5% sodium bisulfite and .25% sulfuric acid. Time ½ hour, temperature 35°C. Bleaching with hydrogen peroxide has given fairly good whites under the following conditions: Hydrogen peroxide concentration 1.0%, pH adjusted to 8.0-9.0 by means of disodium phosphate,

TABLE II

Vicara Denier	Vicara Width in Microns	Wool Width in Microns	Wool Grade
2.0	16.0		
2.5	18.1	—	—.
		19.5	80's
3.0	19.9		
		20.1	70's
3.5	21.4		
		21.9	64's
4.0	22.7		
		23.5	62's

TABLE III

% Alkali Resistance of Vicara

% NaOH	Temp. 0°C.	Time-Hours	Solubility of Vicara
5	23	17	0.0
10	23	17	1.7
25	23	17	2.2
5	50	½	.94
10	50	½	.93
25	50	½	1.65

TABLE IV

Fiber	% Dye Absorbed After 15 Minutes at 130°F.
Vicara	28
Zycon	91
478	100
Wool	52
Fiber	*% Dye Absorbed After 45 Minutes at 212°F.*
Vicara	99.0
Wool	98.5

TABLE V

Fibers	*Cotton System*	*Woolen System*	*Worsted System*
100% Vicara	20's	4½ Run	32's
50% Vicara—50% Nylon	36's	—	60's
50% Vicara—50% Cotton	24's	—	—
50% Vicara—50% Rayon	36's	7¼ Run	—
50% Vicara—50% Wool	—	4 Run	36's

temperature 180°F., time two hours or upward depending upon the degree of whiteness desired.

To date, optical bleaches have not proved effective on Vicara.

C. DYEING.—*Tinting Colors.* Tints are available which can be removed by ordinary scouring methods. These tints should be removed before desizing, as otherwise they may become fixed during subsequent processing and then are very difficult to remove.

Dyeing. In view of the great affinity of Vicara for all types of dyes, acid, chrome, direct, basic, vat, developed naphthol, sulfur and even acetate, it is readily understood that complete information on the characteristics of each dye is not yet available. The readiness with which Vicara takes dyes is remarkable in view of its chemical unreactivity, and is most likely associated with its high water absorption (about 18%). Since Vicara is resistant to strong acids and alkalies, application of acid dyes at the boil or vat dyes at high pH does not present a problem, and in general the perspiration, wash and light fastness are good.

We have been concerned considerably with the rate of dyeing, and Vicara has been so designed that its rate of dyeing is very close to that of wool when acid dyes are used, as shown in Table IV, which gives the percentage dye absorption as measured by the Luminometer.

The dye used in these tests is Croceine Scarlet MOO. It is noted that at a low temperature of 130°F, after 15 minutes, Vicara takes up the dye at a slower rate than wool, and that two other fibers that we produce, namely Zycon and Fiber No. 478, have a much faster rate of dyeing. At the boil, after 45 minutes, the percentages of dye absorbed by wool and Vicara are equal.

Several of the dyestuff concerns have tested and are testing Vicara. No generalizations can be made, and each dyestuff must be tested. The dyeing characteristics of Vicara are good, and Vicara can be dyed without substantial changes in the recommended processing for each dye. Further tests are in progress, not only with the fiber, but with 100% Vicara fabrics and blends with nylon, rayon, cotton, wool, etc. In general, the level dyeing acid colors and the premetallized types will be found most useful. It is difficult to find a dye that will not dye Vicara. To date we know of only one such dye, Indanthrene Blue, which, under the conditions recommended for that dye, will not dye Vicara; however, by increasing the pH and Glauber salt content, even with that one can dye Vicara.

Acid Colors. In the majority of cases tried to date, Vicara dyes heavier than wool, although there are many cases where the reverse is true. The rate of dyeing can be retarded by pre-treatment with tetra sodium pyrophosphate or disodium phosphate. Different retarding agents have different effects, and extensive studies are needed to determine the best one. Good results have been obtained with raw stock dyeing, yarn dyeing and piece goods dyeing.

Chrome Colors. In general, chrome colors dye Vicara heavier than wool.

Direct Colors. Most of the direct colors dye Vicara heavier than cotton.

Vat Colors. The stability of Vicara to vat colors is very good, even up to 10% dry caustic soda on the weight of the fiber.

Acetate Colors. Affinity for acetate colors is good, but resistance to washing, perspiration and light are lower than when applied to acetate.

D. SCOURING AND LAUNDERING.—In view of the good resistance of Vicara to alkalies and to organic solvents, scouring, laundering and dry cleaning present no problems, to our knowledge, and the usual methods can be employed.

12. Vicara—Textile Processing Properties

A. SPINNING.—Vicara is easy to use and handles well on the conventional cotton and woolen systems. Especially good results have been obtained on the long draft cotton system. In general, the longer the staple length of the Vicara, the better the results. The finest yarns that we have been able to produce to date are listed in Table V.

B. WEAVING.—In general, no difficulties have arisen in weaving.

13. Vicara—End Uses

On the basis of the intrinsic properties of Vicara, its performance in finished goods, and economic factors, we believe that Vicara will be used primarily in the following goods:

Women's Dress Goods
Women's Suitings
Men's Suitings
Sports Clothes
Infants' Wear
Knit Goods
Hosiery
Upholstery
Novelty Fabrics.

14. Conclusion

Vicara is produced from a uniform raw material that is abundant and grown in the United States and is not subject to wide price fluctuations. It exhibits a combination of properties, and certain unique properties not possessed by any other fiber. We believe it to be the best all-around man-made protein fiber offered to industry to date. Actually Vicara is just beginning; it is too early to conclude its end uses or possibilities. The outlook is bright.

COLOUR INDEX

A few more copies of the "Colour Index" and "Supplement" of the British Society of Dyers and Colourists are available at $30.00 per set, postpaid, in the United States from the

Secretary, AATCC
Lowell Textile Institute
Lowell, Massachusetts

New York Section—

THE ELEMENT "X" IN NYLON*

A. W. STAUDT

Manager, Nylon Technical Service, Nylon Division,
E. I. du Pont de Nemours & Company

IF you were to ask a chemist about the composition of nylon, he would tell you that it contained the elements carbon, nitrogen, hydrogen and oxygen.

If, however, you were to ask the same question of a textile engineer or a nylon finisher, he would tell you that, in addition to those, the "Element 'X'" was essential for the satisfactory acceptance of nylon by the ultimate consumers.

"Element 'X'", like many of the other elements, was discovered accidentally by the early nylon experimenters. The discovery was made after knitting and dyeing the first batch of nylon stockings. The experimenters found permanent wrinkles in the stockings, which would not press out during the final boarding operation: "Element 'X'" had been applied to these stockings. The wrinkled condition of the hosiery in the dye bags had been HEAT-SET into the fabric by the hot dye liquors.

Experimentation proved that it was necessary to control "Element 'X'" by heat-setting the nylon in the shape and form desired. Water or saturated steam was used at a temperature 15° to 25°F. higher than any other temperature the fabric would experience during processing or use.

Knitted ladies' hosiery is subjected to saturated steam at 15 to 30 pounds per square inch pressure for one to two minutes while held to shape on a leg form. This is accomplished in a pressure vessel generally called a "preboarding" machine, because in most mills the heat-setting is done prior to scouring and dyeing. These subsequent operations produce no permanent wrinkles or distortions of the fabric after dyeing, because preboarding was carried out at a higher temperature and the nylon always returns to the "heat-set form" when permitted to remain in a relaxed state.

Thus what seemed to be a difficulty was transformed into an advantage that has proved to be one of nylon's most valuable properties. Nylon can be heat-set by several different methods, into many different shapes and conditions, to meet a wide variety of needs and uses. I shall describe several of the methods and point out some of the possibilities of how this property can be used.

Heat-setting a nylon fabric causes a rearrangement and fixation of the internal molecular structure to stabilize it. In other words, it causes the fabric to retain, through continued use and laundering, the dimensions, shape or form in which it was heat-set.

The same general principles of heat-setting apply to all nylon. Further research has developed various methods of accomplishing heat-setting of nylon, depending on the type of fabric into which it might be put and the particular effects desired in that fabric. Several of these methods will be discussed as we go along.

Nylon yarn will tend to contract when it is heat-set; the amount of contraction depends upon the processing history of the yarn from the time it was made. As produced on shipping bobbins, it will contract 9 to 10 per cent in a boil-off in water and slightly more if it is treated at high temperatures such as are obtained with saturated steam under pressure. Some of this shrinkage is lost by relaxation as the yarn is twisted, sized, coned, woven or knit, and handled prior to heat-setting. The shrinkage left in any nylon greige goods makes heat-setting a finishing requirement if the dimensional stability of the fabric has any merit in its final use, and there are very few uses where the dimensions of a piece of fabric have no meaning.

Stable woven fabrics were required of nylon as soon as it went to war. Parachute fabrics had to meet rigid specifications of strength, porosity, thickness, and dimensional stability. Technical committees were formed to develop ways and means of producing fabrics that would meet these specifications, and in most finishing plants this was accomplished by boiling the fabric on jigs at little or no warp tension for a sufficiently long time to remove all further shrinkage.

The test set up to check fabric stability was a 30-minute immersion in boiling water, with a contraction of not over one per cent during this boil-off. Eighteen-inch, or larger, squares were used for the test to obtain accuracy of measurements. This test is still a good meas-

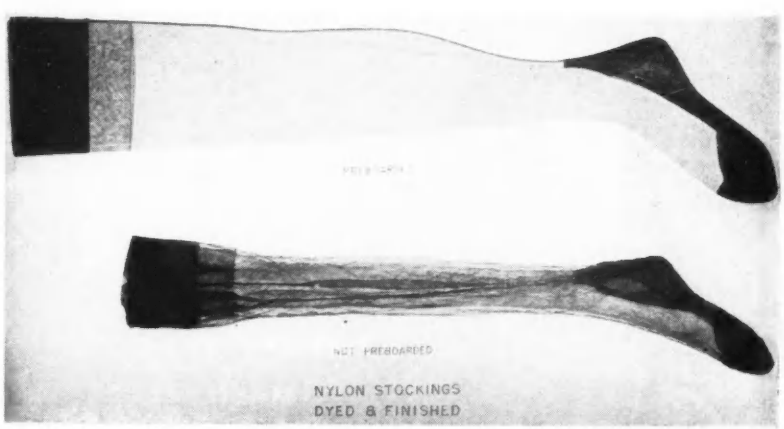


Figure 1
Preboarded Hosiery Compared to Not Preboarded.

* Presented at meeting, New York Section, March 4, 1949.

ure of fabric stability. Properly heat-set nylon fabrics should meet this test, be they knit, woven, or braided; be they cloth, lace, or net.

About the time of the war, the Du Pont Company made available to the finishing industry an experimental heat-setting machine based on an entirely different principle than had been used before. This was a hot-roll machine for treating woven fabrics.

The roll is heated with "Dowtherm" to a temperature between 400° and 450°F. To heat-set nylon, the fabric is passed over the roll at a speed to give 2 to 15 seconds contact. Since the temperature of the treating roll is close to the melting point of present nylon textile fiber types (482°F.), careful control of temperature and time of contact must be exercised. At these temperatures, nylon fabrics can be thoroughly heat-set. A different hand is imparted to the fabric than that obtained from steam or boiling water setting, being generally softer and fuller and more desirable for underwear and blouse types of fabrics.

The hot-roll setting of nylon fabrics is being accepted by more and more finishers, and several different machine designs are now in commercial operation. A study of the hot-roll machine principle is given in a paper, "Some Effects of Dry Heat Upon the Properties of Nylon Fabrics," presented by the Philadelphia Section of the American Association of Textile Chemists and Colorists at their Intersectional Contest, Victory Convention, Hotel Pennsylvania, New York City on January 5, 1946. This paper, published in the Proceedings of the A.A.T.C.C. on January 14, 1946, was presented by Arthur W. Etchells.

Information on the basic principle of hot-roll setting is available to the industry from our experimental machine, and the Technical Service Section of our Nylon Division will be glad to discuss the subject with anyone in either the finishing or equipment business.

For example, one simple design would comprise two heated rolls enclosed in an insulated chamber, a cooling roll, and suitable let-off and wind-up devices with tension control.

In tricot knitting, nylon fabrics have opened an entirely new field to designers because, by heat-setting, it is possible to obtain a fine jersey fabric which is stable and will hold its shape through continued wear and laundering. Steam pressure-setting in an autoclave is again the first and preferred method used by most tricot finishers. In this case, the fabric is usually given a mild scour at a low temperature to remove dirt and grease and to effect the preliminary shrinkage and fulling of the fabric. It is then dried on a tenter and wound onto a perforated mandrel. This perforated mandrel is used to carry the fabric in the autoclave, which, in some cases, is designed to permit a forced and reversible flow of steam through the fabric.

The alternating flow gives a more rapid and more uniform heat-setting than is obtained by merely soaking the roll of fabric in an atmosphere of steam under pressure. It is, of course, essential in any case to first exhaust all air from the autoclave chamber so that the full effect of the steam temperature is obtained throughout the entire roll. Otherwise, the setting will be non-uniform, and will show up in variable shrinkage and probably also non-uniform dyeing.

Steam pressures of 15 to 30 pounds are used, and the time required to obtain a thorough heat-setting, as measured by the shrinkage test, depends upon the thickness of fabric on the roll and also whether or not it is a soaking or forced flow type of operation.

For laces and nets, another method of setting has proved acceptable to obtain a stable fabric and to retain the proper shape and design of the woven patterns. Hot air at temperatures of 380° to 450°F. has been used on closed tenters where the dimensions of the fabric and the design of the pattern could be controlled by the tenter. Open-mesh fabrics exposed to these temperatures for 30 to 90 seconds have been thoroughly heat-set and can be laundered and even boiled off without shrinking them or distorting the patterns.

The shape retention of heat-set nylon has permitted the development of washable, pleated fabrics. These pleats are put into a fabric which has not been heat-set, or at least only partially heat-set, by a standard pleating machine. With the pleating paper interleaved with the pleats and while the fabric is still in roll form, it is subjected to steam pressure to obtain a complete heat-setting in the pleated form. Both tricot and woven fabrics produced in this manner have been worn and washed many times without requiring any ironing to restore the pleats which keep their sharpness throughout the life of the garment.

The imaginative use of this tool of heat-setting nylon offers countless possibilities in the textile field. A few that have already been accomplished illustrate what the future holds for us all.

Molded diaphragms for carburetors or valves.

Molded seamless brassiere cups.

Three-dimensional fabrics obtained by embossing.

Washable pleats for decorations such as edgings, jabots and ruching.

Sweaters and socks that are warm and washable without shrinkage or change of shape.

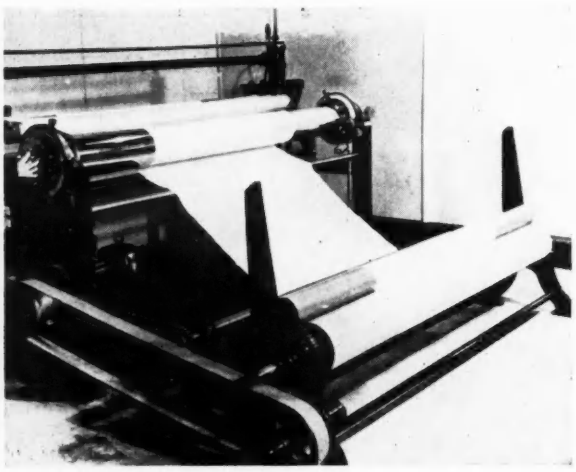


Figure 2
DuPont Single-Roll Heat-Setting Machine.

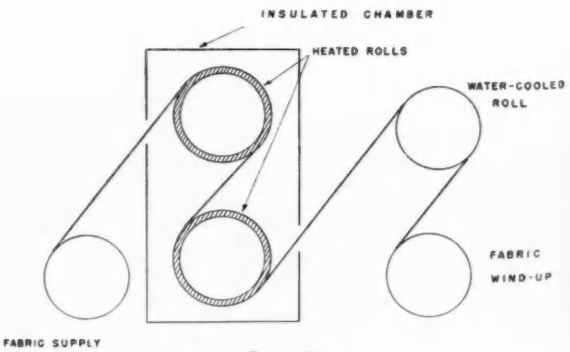


Figure 3
Diagrammatic Sketch of Suggested Hot-Roll Setting Machine.

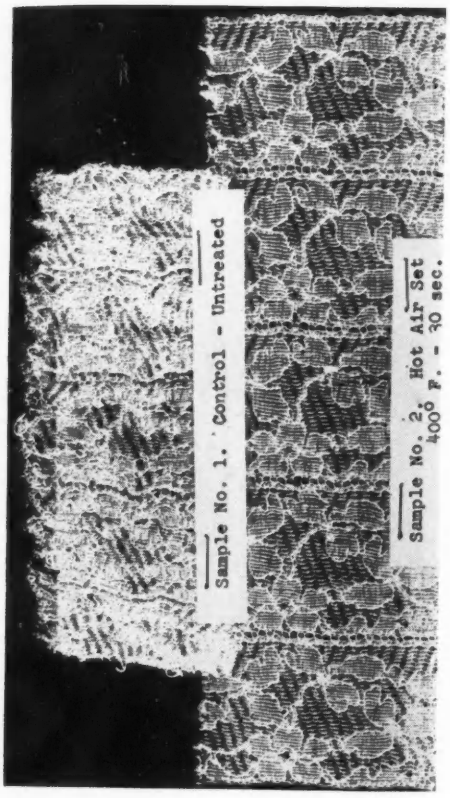


Figure 4
Nylon Lace After 30-Minute Boil-off

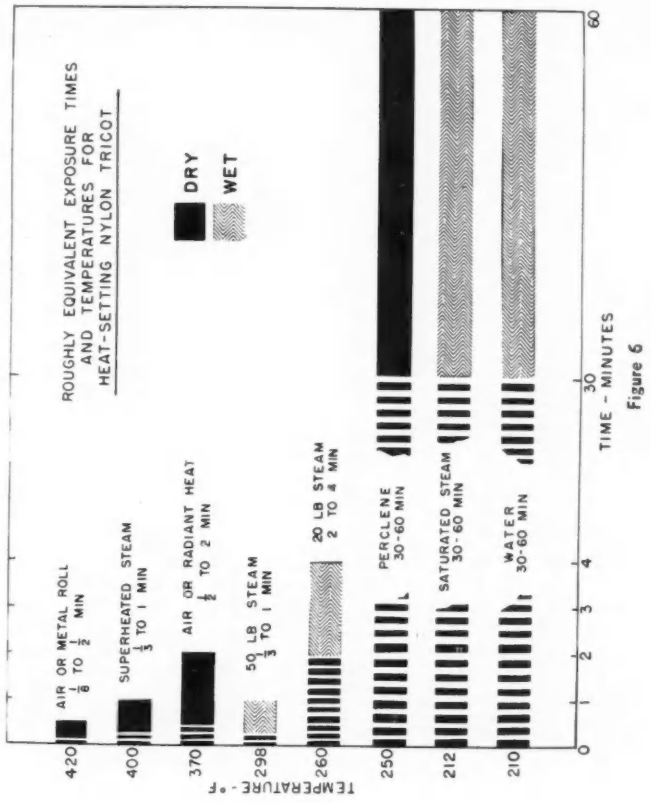


Figure 6

HOT AIR SET

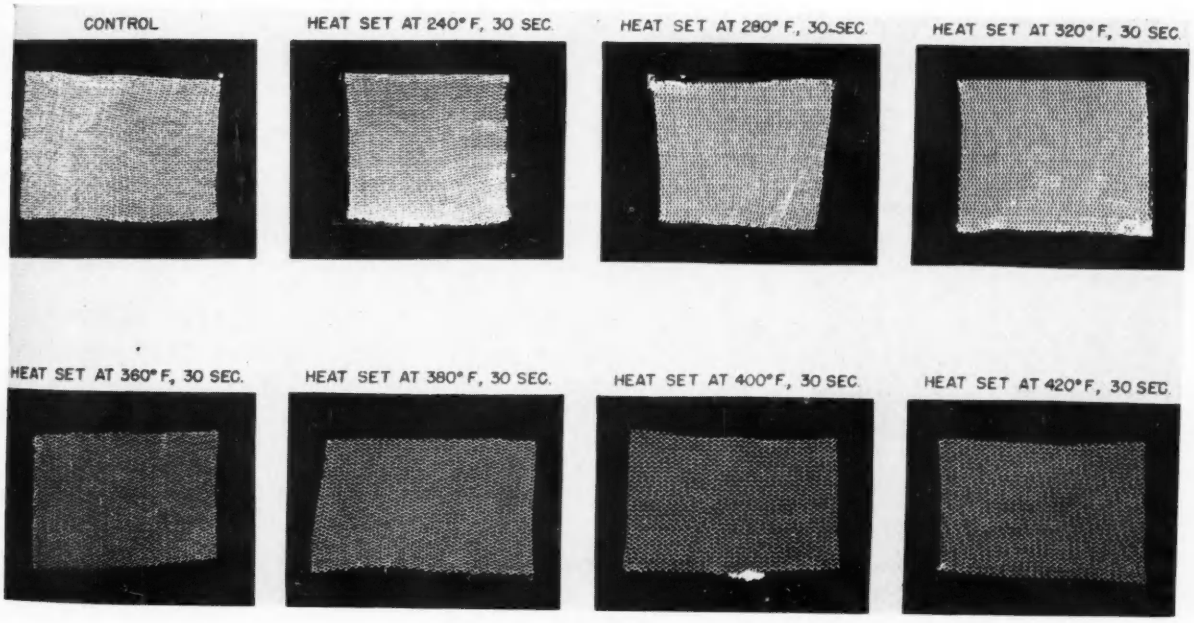

CONTROL
HEAT SET AT 240° F, 30 SEC.
HEAT SET AT 280° F, 30 SEC.
HEAT SET AT 320° F, 30 SEC.
HEAT SET AT 360° F, 30 SEC.
HEAT SET AT 380° F, 30 SEC.
HEAT SET AT 400° F, 30 SEC.
HEAT SET AT 420° F, 30 SEC.

Figure 5
Nylon Net After a 30-Minute Boil-off.

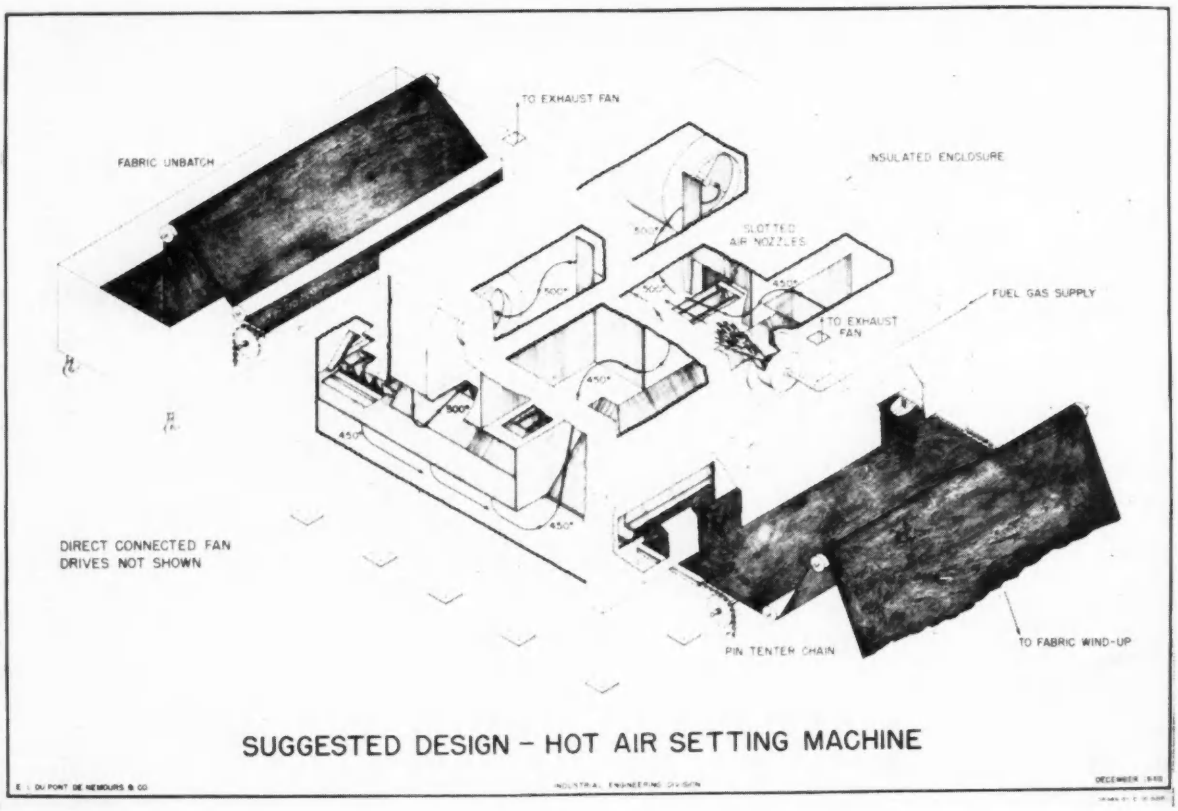


Figure 7

Small children's and babies' dresses, caps, etc., when properly heat-set, can be quickly washed and dried and may not even require ironing.

Heat-setting reduces or eliminates the need for ironing, as exemplified by much of the nylon lingerie and by men's shirts recently put onto the market. There is part of this story that we still do not understand, in that many of these garments require less or no ironing after several washings and ironings. This must be a continuation of the heat-setting phenomenon.

The elastic characteristics of nylon fishing lines, sewing thread and other cords can be modified to suit particular end uses by heat-setting in a stretched condition.

Even lariat ropes and mooring lines are being heat-set to stabilize the twist and overcome shrinkage.

Looking into the future, the finishing industry should become more and more familiar with the value and necessity of heat-setting, not only for today's nylon and tomorrow's nylon, but for some of the other fibers to come that are now clambering out of their test tubes and pilot plants into commercial production units. They also respond to and require heat-setting to fully develop fabric properties and to obtain fabric stability.

Gas Fading Control Samples

Gas Fading Control Samples, formerly supplied by the Association at Lowell, are now available from Testfabrics, Inc., 224 West 35th Street, New York 1, N. Y. These are in addition to the multifiber and 3 fiber fabric which are also sponsored by the AATCC.

Also available from Testfabrics, Inc. are:

5-gram cotton skeins for use in the Draves Test. Skeins are adjusted individually at ± 2% at 70° F. and 65% moisture.

Cotton soil test cloth. Printed to Spec. 51S-47 (INT.) Bureau of Ships.

Wool soil test cloth. Printed with same soil.

Testing and Auxiliaries Group Meeting—

A RE-EXAMINATION OF PRESENT WETTING TESTS[1]

SIDNEY M. EDELSTEIN* and CARL Z. DRAVES**

**Dexter Chemical Corporation*
***General Dyestuff Corporation*

Introduction

JUST eighteen years ago, also at an annual meeting of our association held in the South, the senior author presented a paper entitled "A New Method for the Evaluation of Wetting Agents*(1)*". This paper not only brought unity into a chaotic field but the method also became the official one of our association for evaluating wetting agents. While, for the most part, the official method has been the one used by manufacturers of wetting agents and by textile processors, several other methods also based on the speed of wetting of cotton yarns or fabrics have been proposed from time to time. A few of these have come into fairly wide use.

Unfortunately, however, data from the official method as well as from these new ones, are being used and presented in ways which are completely contrary to the principles underlying these wetting tests.

Our purpose has been to re-examine these tests as well as the methods for using their results.

We have determined the relationships between the several tests as well as the relationships existing within each test itself.

Both authors feel a bit hesitant in presenting the inevitable conclusions that we have reached in studying our data. For these conclusions make complex what heretofore has been considered simple, and show that many of the ideas that have been accepted and strongly held are wrong. The responsibility for that situation is partly our own. Finally, we are forced to conclude from our data that none of the methods will enable us to determine exactly the relative efficiency of one wetting agent compared with another except in the very special case where two wetting agents are exactly the same chemically.

Our work has by no means indicated, however, that these wetting tests are without value. Their value in the field of control remain unchanged. In the broader field where one chemical type of wetting agent is compared against another chemical type, tests methods still reveal relationships between wetting agents which can be of great importance in their practical utilization. In fact, valuable information can be obtained of which proper use has not been made heretofore.

In our present work we have been concerned only incidentally with the ease of manipulation, availability of test material and other factors involved in a particular test. This type of information has been published already for most of the methods. The influence of temperature, pH and other factors have been eliminated from this paper, but will be the subject of later research. Our work with each of the methods has been the relationship of time of wetting to concentration at the particular temperature of 30°C., in distilled water and for cotton only. The relationships of these results to other fibers have not been examined or inferred.

Wetting Tests Studied

We have examined four methods, two of which are based on cotton yarn and two on cotton fabric. These four methods are broadly representative of the many tests available for evaluating wetting agents by determining the wetting times of their solutions with cotton. These methods are the official or Draves method, the canvas-disk method, the yarn-bundle method and the canvas-square method. While these methods are well known we shall review their essentials.

The official method determines the time required for a five-gram skein of 40-2 cotton yarn weighted with a 1.5-gram, 3-gram or 6-gram hook to sink when held below the surface of the liquor being tested*(2)*. Originally a 1.5-gram hook was used for these determinations, but later a 3-gram hook became official. More recently in the 1947-48 Year Book of our Association it is suggested that either a 1.5-gram, 3-gram or 6-gram hook be used, the choice depending on the concentration of wetting agents being studied*(3)*. For a full comparison of two wetting agents over a wide range of concentration, the *Year Book* suggests that a series of determinations be made with each of the three hooks. For each wetting agent with each hook, the time of sinking is plotted against the concentration of the wetting agent on log-log paper and a straight line is drawn between the points in the range of 100-seconds to 10-seconds. Comparisons between two wetting agents are made by comparing the concentrations of the wetting agents required to give a 25-second sinking time.

The canvas-disk method was proposed some ten years ago*(4)*. While its originators claimed it to be more accurate than the official method, later work disproved this. This method depends on the time of sinking of 1-inch disks of No. 6 Mount Vernon Duck in a solution of the wetting agent when held below the surface of the liquid by an inverted gooch funnel. Although the authors of this method did not use the idea of log-log plotting of results, which was original with the official method, in general the results of this method have been handled exactly as for the official method with log-log plotting of the results and comparisons of concentrations of wetting agents giving a 25-second sinking time.

The yarn-bundle method was originally proposed by one of us for evaluating mercerizing penetrants in strong caustic solutions. It is now the tentative test method for this type of evaluation by the Association*(3)*. More recently it has been used by some laboratories for evaluating ordinary wetting agents, particularly in high concentrations. In brief the test is made by measuring the time of wetting of a bundle of 120 parallel ends of 40-2 combed-peeler gray cotton yarn one inch in length when dropped onto the surface

[1] Presented at Testing and Auxiliaries Group Meeting, Augusta National Convention, October 22, 1948.

of the test liquor. The data is plotted on log-log paper as for the other two methods. Comparisons of wetting agents are generally made, however, at a wetting time of 5 seconds or less instead of 25 seconds.

The canvas-square method was developed by the present authors. It is new only in the sense that the exact conditions of test are prescribed. Modifications of this test have been used for some time by many laboratories. Our test consists of measuring the time of sinking of one inch squares of No. 6 Mount Vernon duck, when dropped onto the surface of the solution under test. Data are plotted on log-log paper and used as with the official method. The effect of type of canvas, size of square, shape of canvas and other variables have been studied in detail and will be the subject of a separate paper.

We have chosen four well-known commercial wetting agents for our work with these methods. Each represents an important chemical type. These four agents are (a) a sodium sulfonate of an organic ester, (b) a sulfated fatty ester, (c) a sodium alkylnaphthalenesulfonate, and (d) an alkylarylsulfonate.

Of the four methods under investigation, all except the yarn bundle method gave accurate and reproducible results with the four wetting agents. Wetting agents "A" and "D" gave variable results with the bundle method, and this test therefore does not appear to be generally suitable for evaluating wetting agents other than for mercerizing.

Examination of Data

Figure 1 shows log-log plots for each of the wetting agents obtained with the official method using a 3-gram hook. If we look at the concentration required to give a 25-second sinking time we note that 0.63 grams per liter of (a) gives the same wetting time as 0.58 grams per liter of (b). By the official method then (a) has 92% the efficiency of (b). Suppose, however, that we take a slightly different wetting range or concentration range for comparison, say 10-second sinking time or in the range of 1 to 1.5 grams of wetting agent per liter. Here we see that the reverse is true. 1.5 grams per liter of (a) gives the same wetting as 1.33 grams per liter of (b). Here, (a) is 120% as efficient as (b). As we examine these graphs further we note that there are concentration ranges where (a) is less efficient and more efficient than (c), and (c) is both more efficient and less efficient than (d), depending on the concentration range under consideration. There are also points where (a) is exactly equal to (b), (b) equal to (c), and (c) equal to (d).

Obviously then, the relative efficiency of one wetting agent compared with another can be obtained only for an extremely narrow concentration range.

Since it has been assumed in the past that solutions of different products which cause sinking by a standard method in the same standard time are equivalent in wetting power(5), it would appear that for all practical purposes one need only to determine the concentration range where the wetting agents are to be used and to make comparisons at this point with any particular wetting method. We have found that this might be misleading. For while two particular solutions of wetting agents may give exactly the same wetting time by our test or under one set of conditions, they do not give equal wetting times with a different test or under a different set of conditions. In other words, solutions of different products which cause sinking by a standard method in the same standard time are equivalent in wetting power only for that particular standard method.

Suppose we look at Fig. 1 again. The curves for (a) and (b) intersect at a concentration of 0.75-grams per liter. For this particular test and for the particular set of conditions employed, 0.75-grams per liter of (a) are equal in wetting to 0.75-grams of (b). Suppose, however, we make only one change. A 1.5-gram hook is employed instead of a 3-gram hook with all other conditions kept the same. Figure 2 shows the log-log plots for the 1.5-gram hook. Here, however, 0.75 grams per liter of (a) does not give the same time of wetting as 0.75 grams per liter of (b). It is equivalent to 0.54 grams per liter of (b) and hence by this test is only 75% as efficient as (b). Fig. 3 shows the plots with a 6-gram hook, Fig. 4 plots for the canvas-disk method and Fig. 5 plots for the canvas-square method. Each figure shows a different relative value for 0.75 gram of (a) against (b).

In examining these figures, we note that there is a general similarity between each figure and obviously there must be some special relationship between the different wetting methods. This relationship is made clear when we examine the log-log plots of the results of the several tests for a single wetting agent.

Figure 6 shows these plots for product (a). The relationship between the tests

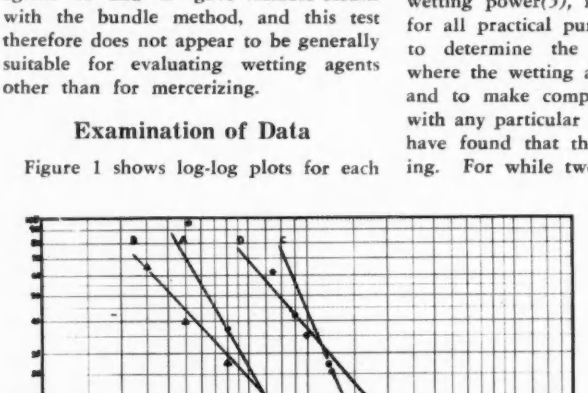


Figure 1

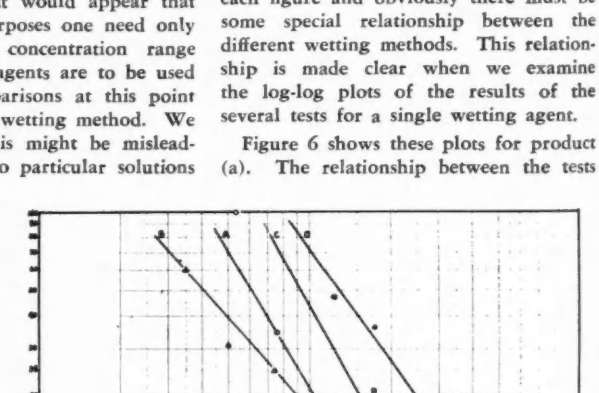


Figure 2

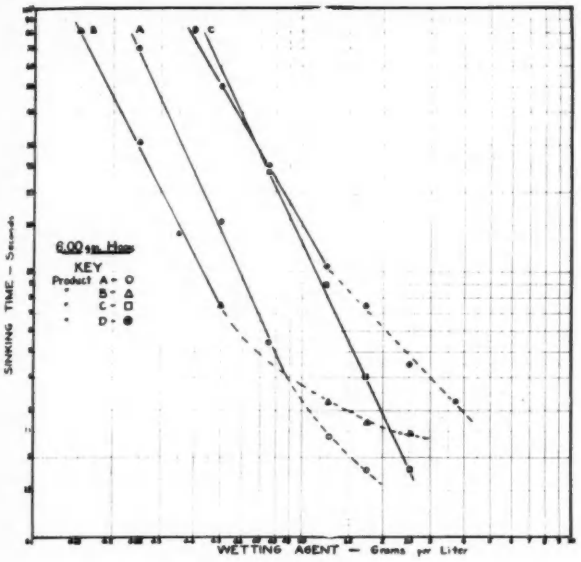


Figure 3

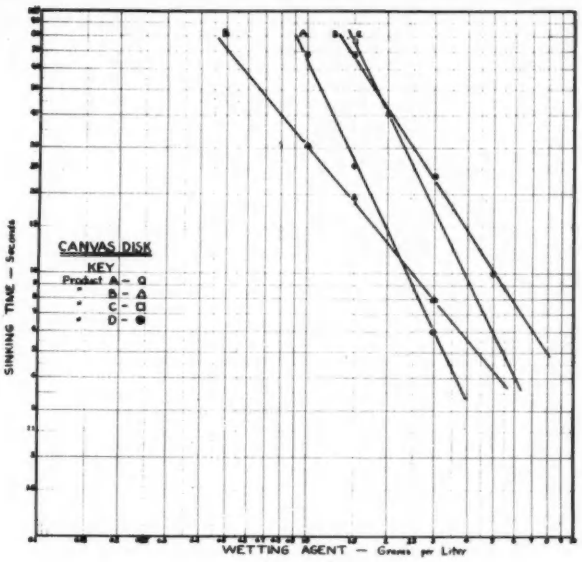


Figure 4

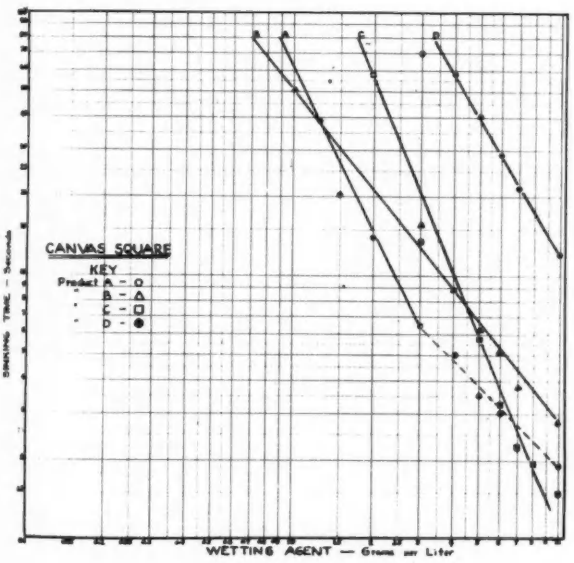


Figure 5

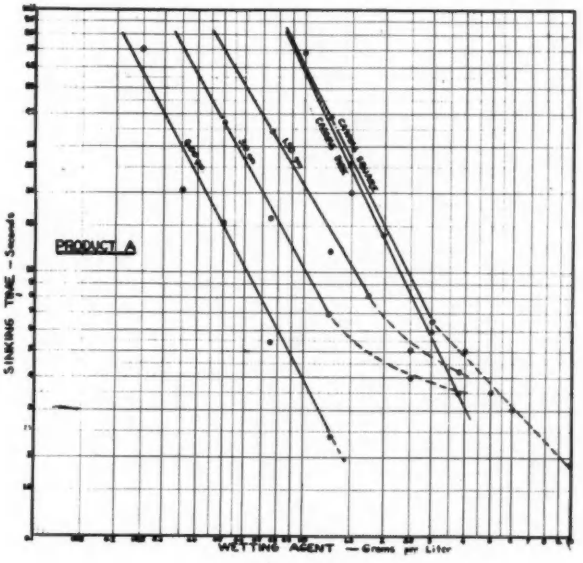


Figure 6

stands out immediately. The curves are all practically parallel and hence have closely the same slope. The slope of each curve may be calculated from the experimental results and the angle made by the curve and the X-axis calculated, or measured. For product (a) this angle ranges from 66° to 61° with an average of 64°. This is well within the experimental error for the test methods.

Figure 7 shows the results for product (c) with the average angle 66°.

Figure 8 shows product (d). The average angle is 56°.

Figure 9 shows the results for product (b) with the curve for the yarn bundle method also included. In this figure all of the curves are approximately parallel with the exception of that for the official method with the 6-gram hook. This latter curve appears to be an exception to the general relationship noted. Excluding the 6-gram hook curve, the average angle for product (b) is 50°. The angle for each curve other than for the 6-gram hook shows no greater deviation from the average than do those of the other three products.

We may accordingly conclude that for the four distinct chemical types of wetting agents investigated, the slope of the wetting curve is a constant. This applies to the official method with the 3- and 1.5-gram hook, the canvas-disk method, the canvas-square method and probably the yarn-bundle method, although the latter gives reproducible results only for certain wetting agents. This relationship probably also applies to the official method with the 6-gram hook, but the single deviation from this relationship adds uncertainty for this particular test. It, therefore, appears strongly probable that the slope of the wetting curve for any particular wetting agent is a fundamental constant for that agent. This was pointed out by the senior author in his last previous paper published in 1939, but has

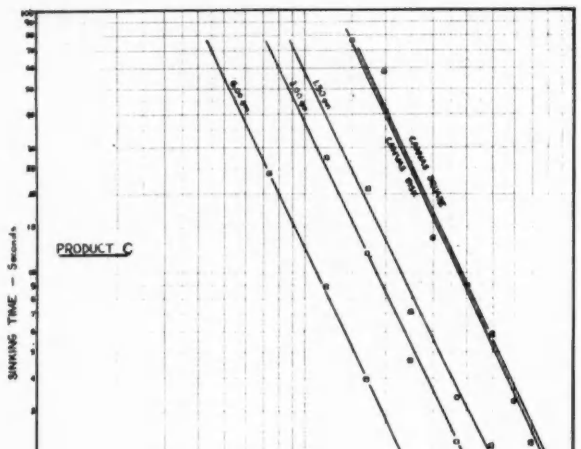


Figure 7

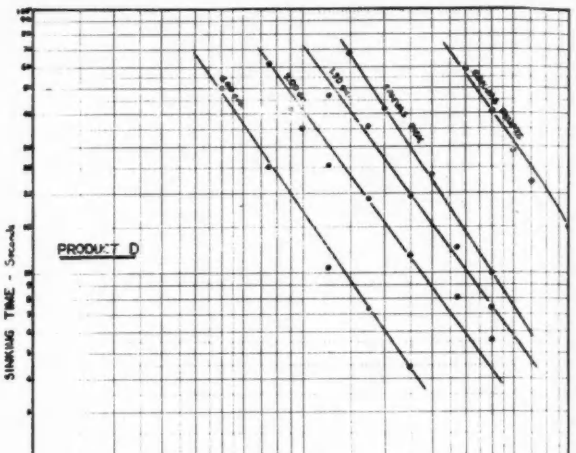


Figure 8

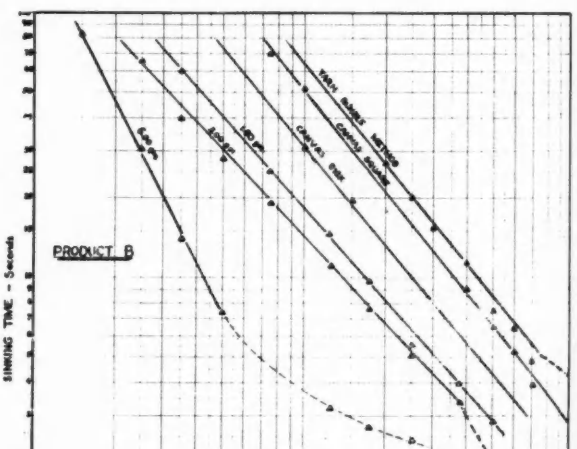


Figure 9

not been properly appreciated or exploited.

Since we have now shown that wetting agents can be directly compared only for an extremely narrow set of conditions, and furthermore that the only apparently fundamental attribute of a particular wetting agent is the slope of its wetting curve, we should ask this question. "Are wetting tests of any practical use?", and if so, "How can they be used and which test or tests should be used?"

We emphatically state that wetting tests are of definite practical value. Their value, however, depends on a careful interpretation of the results of the tests and a knowledge of the special conditions under which the agents are to be used practically.

As a means of control for the concentration of a particular wetting agent in a process, or as a means of comparing wetting agents of exactly the same chemical type, each of the several wetting tests is extremely satisfactory. For either of these purposes the tests may be used as they have been in the past.

In all of the other cases, however, we have a different set of conditions which require a different treatment. For now the slope of the wetting curve of each wetting agent becomes an important consideration.

Use of Wetting Test Data

The slope of the log-log curve of each particular wetting agent, or the angle the curve makes with the X-axis, may easily be calculated from the experimental data or measured directly from the graph.

If the slopes of the log-log plots of two wetting agents are equal or very close then, of course, comparisons of efficiency can be made just as if they were chemically the same. In other cases, however, where the slopes of the wetting curves of two wetting agents are noticeably different (and this is generally the case) it must be emphasized that a single comparison of concentrations at a particular wetting time may be worse than useless, in fact misleading, unless this information is coupled in some manner with the slope factor. Never should wetting tests be reported in such a manner as:—product (a) is X% as efficient as (b) by such and such a test or that "product (a) wets out so many seconds by such and such a test method."

In comparing wetting agents not of exactly the same chemical composition, the following general procedure may be used. This applies to the test methods under discussion.

Once the curves have been drawn for the two wetting agents being compared, it is to be noted whether or not the lines are parallel or almost parallel. This may be done by direct observation or by calculating or measuring their slopes or

angles with the X-Axis. If the curves are parallel, or if they make the same angle with the X-Axis, the two products may be compared at any particular point to obtain exact values for the relative efficiency. If the two curves are approximately parallel, or in other words if they make approximately the same angle with the X-Axis, then gross comparisons may be made in the same manner.

Let us look at Table I, which shows relative values for each wetting agent compared against (b), for 50-second, 25-second and 10-second wettings, with the official method using a 3-gram hook, and with the canvas square method.

For example, take product (a) and product (c). The average angle for (a) is 64° and for (c) 66°. The approximate relationship between the products is that one part of (a) is equal to 2 parts of (c).

In the case of products (b) and (d), the angles differ a bit more, (b) having an angle (leaving out the 6-gram hook) of 50°, and (d) having an angle of 56°. Comparisons at any particular point range from (d) being 23% as efficient, to (d) being almost 50% as efficient as (b). Obviously these comparisons at any particular point tell us that (b) is more efficient than (d) and that (d) has an efficiency approximately 20% to 50% that of (b).

In the case of (a) and (b), however, the angle is 64° for (a) and 50° for (b). The relationship ranges from where (a) is only 69% as efficient as (b) to where (a) is 148% as efficient. Obviously any single comparison here is quite inadequate. We can note one thing, however, from examination of the curves for (a) and (b), and that is this. As we lower the concentration range, (a) decreases in efficiency at a greater rate than (b), or to say the same thing in a different way, as we increase the concentration range, (a) increases in efficiency at a faster rate than (b). This, of course, brings up to an examination of the fundamental attribute of a wetting agent, which is the slope of its wetting curve.

The slope of the wetting curve of a particular product certainly governs some of the product's properties in a practical way.

Since, for each particular product studied so far, the slope is the same for such diverse wetting tests as that depending on a weighted skein of yarn held under the liquid, and on those involving dropping a square of fabric on the surface of the liquid, in concentrations of wetting agents ranging from 0.3 grams to 3 grams per liter for (a) and 0.5 grams to 10 grams per liter for (d), (which is a rather complete practical range), we may reasonably expect that this slope factor will also be a constant for any of the commercial processes under which the wetting agents may be used.

RELATIVE WETTING EFFICIENCIES FOR TWO TEST METHODS ~ B-100

Product	Av. Angle of Wetting Curve with X-axis	50 Second Wetting		25 Second Wetting		10 Second Wetting	
		Official 3-gm Wt.	Canvas Sq.	Official 3-gm Wt.	Canvas Sq.	Official 3-gm Wt	Canvas Sq.
A	64°	69.2	91.8	92.	120.	126	148
B	50°	100	100	100	100	100	100
C	66°	31.7	49.3	46.3	65	73.2	90.5
D	56°	38.2	23.2	41.4	27.7	44.2	33.0

TABLE I

Obviously then the slope can give us some measure of the sensitivity of concentration change of a particular wetting agent. For example, suppose we look at product (a) and (b) and let us suppose that they cost the same. It is reasonable to assume that in very low concentrations (b) would maintain its wetting efficiency for a greater length of time than would (a) if they both were sensitive to some factor such as the loss of wetting power on standing. Also, if one were working in a critical concentration range, a slight change in water ratio to yarn ratio, or slight exhaustion of the product, would have less effect on reducing the wetting power of (b) than that of product (a). This same factor would also be present in the higher concentration ranges.

From the standpoint of efficiency, however, it is obvious that in very high concentrations, as in continuous operations, the product with the steepest slopes might be desirable. In these very high ranges (a) would probably be more efficient than (b), even in spite of its greater sensitivity.

Conclusions

The choice of the wetting test, either for control or for the comparison of wetting agents of the same chemical type, is essentially a matter of personal preference or convenience. Normally the test which gives sinking times near 25-seconds, for the particular solutions being studied, would be selected.

In the comparison of wetting agents differing chemically, however, our work has indicated that two different tests should be used if a broad picture of the relative wetting efficiencies is to be obtained.

Since the official method has been used for a number of years and is so familiar to most, we feel that it still should serve as the basic wetting test. This test need be used only with the 3-gram hook, however. For a further comparison of the wetting agents, in a higher range of concentration and with a test quite different, we suggest the canvas square method.

We further suggest that log-log plots be made of the results obtained by both methods, and that comparisons be made between the concentrations required to give 50-seconds, 25-seconds, and 10-seconds, sinking time for the wetting agents in both tests. This data may be arranged in tabular form to give a general view of the relationships existing between the wetting agents.

In conclusion we wish to emphasize that the final evaluation, of the relative efficiency of one wetting agent compared with that of another, can be obtained only by actually comparing these agents under the particular practical conditions for which they are intended. Laboratory wetting tests of the type we have studied can prove of great value when judiciously used. Short cuts can lead only to error.

References

1—Draves, C. Z. and Clarkson, G. R.—American Dyestuff Reporter *20*, 201, 1931).

2—A.A.T.C.C. Year Book Page—230-235, 1946.

3—A.A.T.C.C. Year Book Page. 151-153, 1947-48.

4—Seyferth H. and Morgan, O.M., American Dyestuff Reporter, *27*, 525-532, 1938.

5—Draves, C. Z. American Dyestuff Reporter, *28*, 425-428, 1939.

Discussion

Question: I note that these were all run at one particular temperature. Wouldn't the curves have a different slope if run at other temperatures?

Mr. Edelstein: Yes, the shape of the curves would be different at different temperatures, but for each particular product the whole set of curves would still be parallel. We have not been too concerned with how a test varied with the temperature, but we wish to show the relationship between the particular tests.

Question: The tests that you have made are concerned only with natural cotton. How about the effect of wetting agents on starch and other materials found in textile fabrics?

Mr. Edelstein: My answer is that our main interest is not the development of new tests but only the evaluation of the

(Concluded on Page P352)

Northern New England Section—

DATA ON A LABORATORY METHOD FOR WOOL RAW STOCK DETERGENCY[1]

E. A. LEONARD* and L. BECK**
Product Engineering Laboratories,
Alexander Smith & Sons Carpet Co., Yonkers, N. Y.

I. Introductory and Summary

TWO technical papers previously published *(1, 2)* have described an apparatus and a procedure by which the effectiveness of detergent systems for continuous raw stock scouring can be quantitatively evaluated in the laboratory.

To make a short review, the test is based on the observation that a wool washer, freshly charged with suitable detergent and builder, and with temperature and other variables properly adjusted, will turn out clean scoured stock; also that if an indefinite amount of stock is put through the washer without further additions of detergent and/or builder, the grease content of the scoured stock will at some point exceed some desirable limit —that is, the stock will no longer be satisfactorily cleaned. It was then conceived that if the stock were sufficiently uniform, and the detergent concentration, bath temperature, and other conditions could be controlled with sufficient precision, a constant amount of such stock might be reproducibly cleaned below a given limit of residual grease content by a given detergent system.

In accordance with this theory, a laboratory constant temperature bath was equipped with 3-liter metal bowls representing the suint, scouring and rinse bowls of a wool washer, respectively. A raw stock blend of wool was carded and spun into yarn to provide a supply of grease wool of great uniformity.

When controlled amounts of detergent and alkali were charged into this miniature scouring system at a given temperature, and small units of the grease wool passed in succession through the respective bowls as they would go through a wool washer, keeping the time of immersion and agitation in accordance with mill practice, it was found that reproducible curves of residual grease content versus the cumulative weight of wool passed through the washer could be obtained. This was found to be the case not only in determining the exhaustion point of a fresh charge, but also when followed through several additions subsequent to the original charge. It was thereby established that a laboratory method could be used to investigate the process variables in continuous raw stock scouring, which would not be subject to the uncontrollable factors of the mill process, and which could be used for detergent evaluation without interfering with normal production schedules.

This paper presents data collected on such laboratory studies subsequent to the information given in those papers previously released.

Included are the following items:

1. The effect of temperature on scouring efficiency.
2. The effect of squeeze-roll pressure on scouring efficiency.
3. The effect of feed-back from the rinse bowl to the suint bowl.
4. The effect of immersion time on scouring efficiency.
5. The effect of detergent concentration on scouring efficiency.
6. Uniformity of scoured stock as affected by the method of making detergent additions.
7. A comparison of various detergents for raw-stock scouring.

II. Establishment and Definition of a Standard Scouring Curve

The laboratory method as set up is very flexible as to temperature, number of bowls, volumes, concentrations, pressures, immersion times, and so forth. Any user can therefore adapt the test to the conditions in his plant. Based on a knowledge of those conditions, an arbitrary standard can be set up against which any other set of conditions can be compared for scouring effectiveness. At the Alexander Smith Carpet Company an upper control limit for residual grease content of scoured stock is 1.3 per cent for certain common blends.

This control limit was arbitrarily adopted for the laboratory standard. The other factors were:

(a) Fixed squeeze roll pressure as noted below.

(b) Temperature 140°F. in all bowls.

(c) 30 seconds immersion time.

(d) A three bowl system (for purposes of simplicity), in the scouring bowl of which the charge consists of 25 grams soda ash and 1.53 grams tall oil soap, semi-refined, 67 per cent solids, in 2 liters of solution. (Referred to later as "unit charge" or "u.c.")

(e) Constant feed-back from the rinse bowl to the suint bowl, 0.37 liters/min. (See Fig. 3).

Under these conditions, when a standard yarn in the grease state is put through the system in 5 gram units, a total of about 90 grams will be scoured within the control limit of 1.3 per cent. This corresponds to the 140 degree curve of Figure 1.

The 1.3 per cent limit indicated by a dotted line in Figs. 1, 6, 7, 8, 9 and 10, is a statistical limit taken from the control charts used in production analysis but has no statistical significance in the laboratory test. The amount of wool which will be scoured under these standard conditions is subject to certain long-term variables which have not as yet been completely evaluated. When first run, for instance, about 10 months ago, the standard conditions scoured 95 grams of wool. With the same yarn, solution and equipment, 10 months later the amount scoured at standard conditions is about 70 grams. Constant checking of the standard is therefore imperative for careful comparative testing. For the major portion of the period in which this testing was done the standard averaged about 90 grams of wool scoured to 1.3 per cent residual grease.

Possible factors in these changes are ageing of the grease yarn, compressibility changes in the squeeze-roll covering, ageing of the soap solution, etc., which provide fruitful material for further study.

* Asst. Chief.
** Development Engineer.
[1] Presented at meeting, Northern New England Section, January 21, 1949.

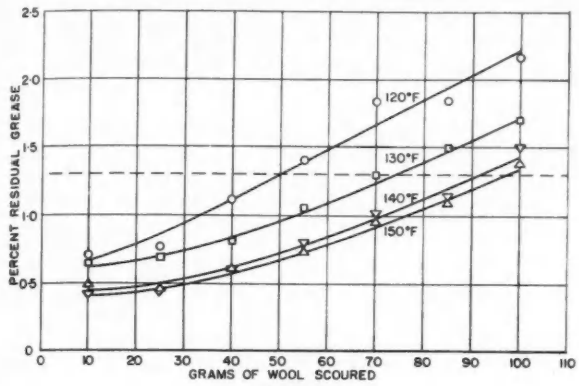


Figure 1
Effect of Temperature on Scouring Effectiveness.

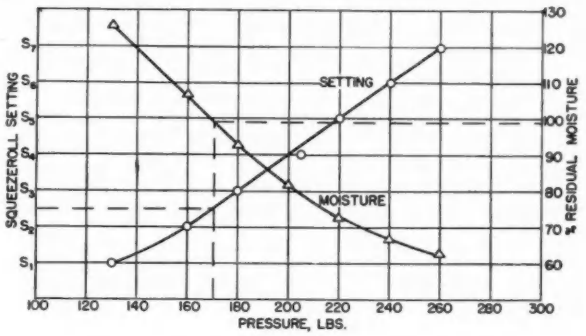


Figure 2
Calibration Curves for Laboratory Squeeze Roll.

III. Testing Results

A. THE EFFECT OF TEMPERATURE ON SCOURING EFFICIENCY.—Figure 1 illustrates the amount of wool scoured with a standard charge at varying temperatures, other factors being standard. Using the control limit of 1.3 per cent, 140°F. scouring is satisfactory for 90 grams of wool. Dropping the temperature 10° to 130°F. reduces the efficiency to 75 grams and another drop of 10° to 120°F. cuts the efficiency almost in half to 50 grams. On the other hand, 150°F. did not result in a significant improvement over 140°F. These results are in agreement with the work of LeCompte & Creely *(3)* who have found that 140°F. is an optimum scouring temperature for raw wool stock. This, of course, has relation to grease content only, and may be subject to factors which might mitigate against such a temperature, such as wool damage in very strong scouring solutions, "fullness," etc.

The reasons for this temperature effect have not been thoroughly analyzed except to note that the melting range of natural wool grease runs around 110° to 120°F., and its minimum fluid viscosity is attained at 140°F.

B. THE EFFECT OF SQUEEZE ROLL PRESSURE ON SCOURING EFFICIENCY.—The laboratory apparatus employs a hand-operated squeeze roll which is loaded by spring tension with set screw adjustment. It was found to be rather difficult to correlate the squeeze roll setting, and corresponding pressure measured by a strain gage, with mill squeeze rolls. To approximate this relationship, however, Figure 2 was constructed from data which include the residual moisture content of the wool yarn after passing through the squeeze roll. The squeeze roll pressure effect is then interpreted in terms of residual moisture content, rather than a pressure reading which cannot be translated to production equipment.

TABLE I
Effect of Squeeze-Roll Pressure on Scouring Effectiveness

*Squeeze-Roll Setting**	S_1	S_2	S_3	S_4	S_5	S_6	S_7
Residual Moisture Content**	126%	107%	93%	82%	73%	66%	62%
Grams of Wool	71	65	62	85	88	83	69
Scoured, U.C.	61	—	60	80	65	—	73

* See Fig. 2 for corresponding strain—gauge pressure readings.
** N = 3, dry basis, 5—gram skeins.

Table I indicates the results obtained by this analysis. The squeeze roll setting S_0 corresponds to the number of turns of the set screw which will just give minimum applied pressure and below which it is running free. Then S_1, S_2, S_3, etc., indicate a corresponding number of additional turns of the screw in the direction of increasing pressure.

The next row in the table indicates the corresponding residual moisture content of the wool passed through the squeeze roll at those respective settings. The last row states the number of grams of wool which were scoured within the control limit. In most cases, two runs were made.

S_4 is the condition adopted for the standard curve.

It will be noted that no straight line relationship exists between the scouring efficiency and the squeeze roll pressure stated in terms of residual moisture content. A break appears between S_3 and S_4, however. That is, scouring under conditions of squeeze-roll adjustment for residual moisture content of 82 per cent or less is better than scouring at squeeze roll pressures corresponding to 93 per cent moisture or more.

C. THE EFFECT OF FEED-BACK FROM THE RINSE BOWL TO THE SUINT BOWL.—It has been a practice in this mill to reflux the solution squeezed out at the final rinse back to the suint bowl.

One of the papers previously published *(1)* indicates that a small amount of detergent in the first bowl assists the cleaning effectiveness of the system as a whole. A series of laboratory tests was made to investigate the effect of the amount of this feed-back on scouring properties. The hook-up for this investigation is illustrated in Figure 3 and the results obtained are shown in Table II. It will be noted that the effectiveness of such feed-back is not realized over short periods of washer operation since significant differences between the different rates of feed-back are not observed up to the points of exhaustion of the initial charge. Such differentiation apparently is best observed over long runs where several additions are made to the bath, and during which time an appreciable detergent concentration is built up in the suint bowl. As noted above, the standard conditions include a feed-back of 0.37 liters per minute.

This parallels the mill operation and limits the build-up of detergent in the rinse bowl which might otherwise confuse results.

TABLE II
Effect of Feed-Back on Scouring Effectiveness

Run	*Feed-Back (Liters/Minute)*	*Grams of Wool Scoured**
1	0.62	86
2	0.37	93
3	0.18	80
4	0	86

* Conditions other than feed-back all standard.

D. THE EFFECT OF IMMERSION TIME.—A series of curves was made, illustrated in Figures 4 and 5, showing the effect of variable immersion time on the total amount of wool scourable with a given charge. The principle which has been deduced from the data is that a minimum immersion time is required to realize the greatest scouring efficiency from any given detergent charge. If the immersion time is less than this value, the detergent charge is not utilized to its greatest efficiency, and if the immersion time exceeds this optimum, little additional value is achieved, as shown by the flattening of the curve at higher immersion times.

E. THE EFFECT OF DETERGENT CONCENTRATION.—The results of this investigation are also illustrated in Figures 4 and 5. It is to be noted that a reduction of the charge from 1.00 to 0.75 produces a very marked decrease in scouring efficiency for the system used. An increase in concentration permits the scouring of more wool, but not in direct proportion to the increase in concentration. It must also be observed that a longer immersion time is necessary at higher concentrations to achieve full value from the detergent charge used.

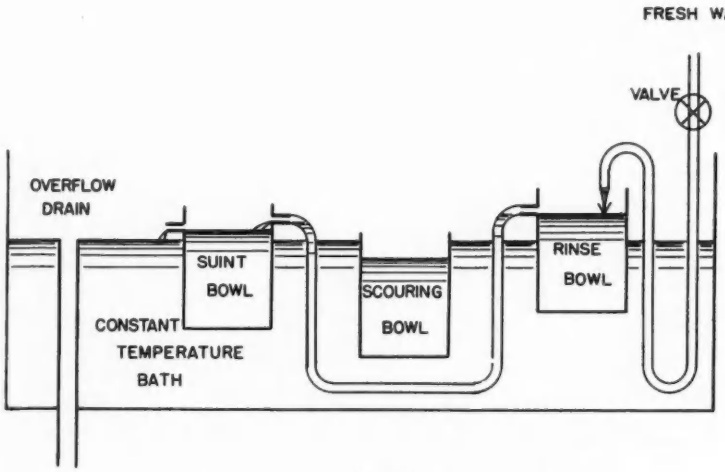


Figure 3
Connections for Feedback, Rinse Bowl to Suint Bowl.

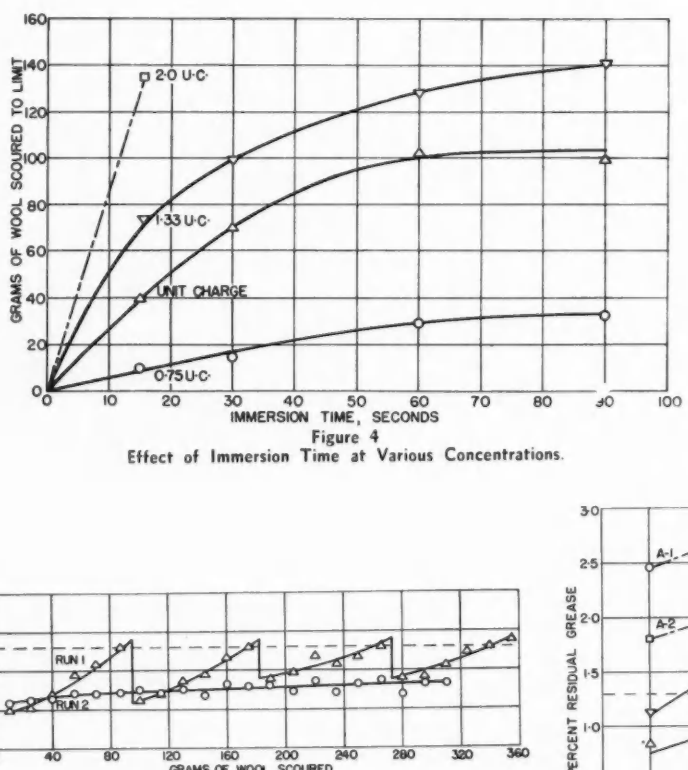


Figure 4
Effect of Immersion Time at Various Concentrations.

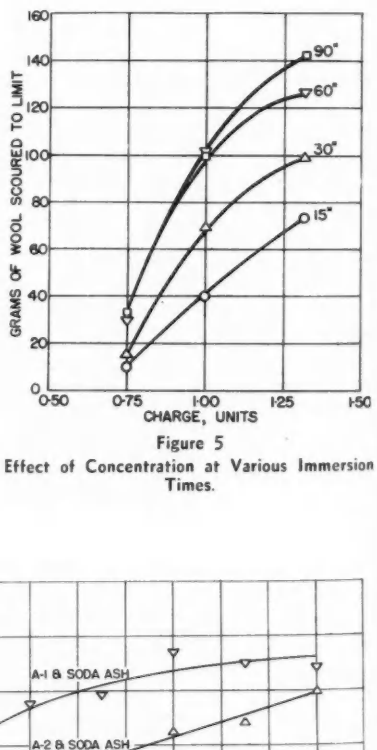


Figure 5
Effect of Concentration at Various Immersion Times.

Figure 6
Comparison of Periodic Detergent Addition (Run 1) with Continuous Addition (Run 2).

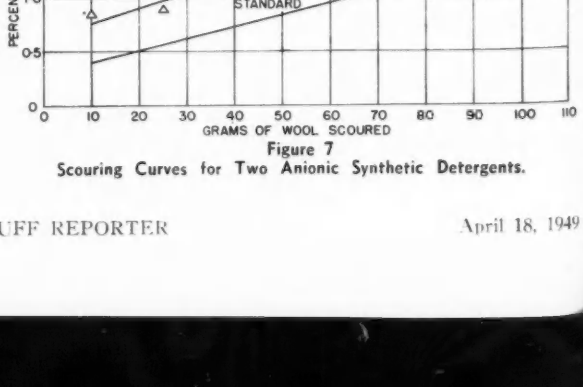


Figure 7
Scouring Curves for Two Anionic Synthetic Detergents.

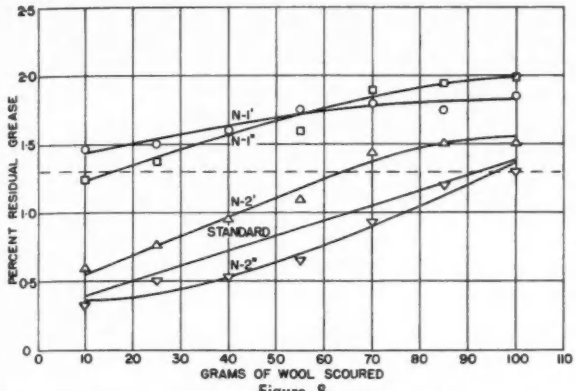


Figure 8
Scouring Curves for Two Non-ionic Synthetic Detergents.

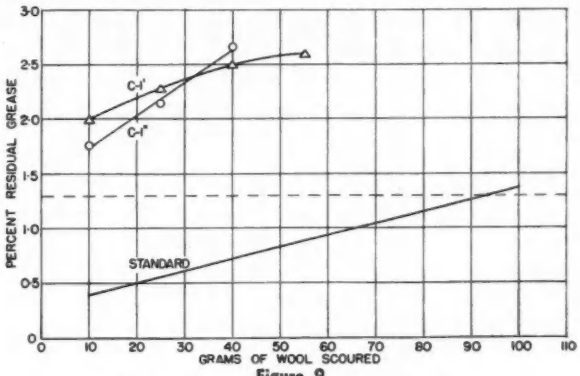


Figure 9
Scouring Curves for a Cationic Synthetic Detergent.

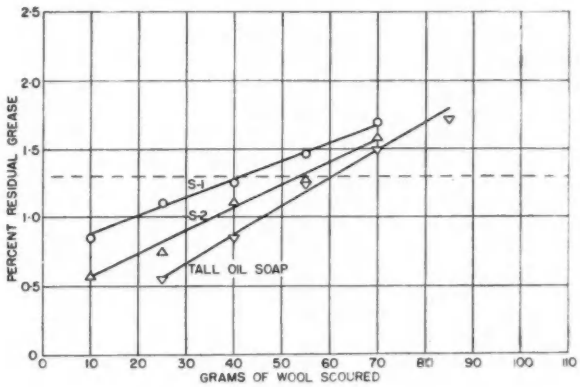


Figure 10
Scouring Curves for Three Soaps.

F. UNIFORMITY OF THE SCOURED STOCK AS EFFECTED BY THE METHOD OF DETERGENT ADDITION TO THE BATH.—It is well known to experienced scourers of wool stock that additions of detergent and builder must be made to the washer if the scouring potentiality is to be maintained. Such additions may be made by:

1. A continuous trickle into the bath.
2. Large increments added at intervals of one-half hour or one hour, and so forth.

Figure 6 illustrates the difference in results obtained by a comparison of (1) and (2) above. The method of adding large increments permits the grease content of the scoured stock to creep approximately to the control limit and then drops it back to a low point. Additions were made continuously in very small amounts, on the other hand, giving a smoother extraction curve which produces stock of greater uniformity. Both Runs (1) and (2) used the standard conditions with unit initial charge. In the case of Run (1), 0.25 unit charges are added at 90, 180, and 270 grams. In the case of Run (2), one charge is added continuously between 15 and 315 grams.

G. COMPARISON OF VARIOUS DETERGENTS FOR RAW STOCK SCOURING.—A most interesting series of tests was made in which various synthetic detergents were compared for scouring effectiveness with the tall oil soap, soda ash standard. The materials tested are as follows:

Code	*Detergent*
A-1	Sodium Fatty Alcohol Sulfate, 1.52 gm. *
A-1 & Soda Ash	1.04 gm. A-1 plus 11.37 gm. Soda Ash.
A-2	Alkyl Aryl Sulfonate, 2.54 gm.
A-2 & Soda Ash	1.71 gm. A-2 plus 11.37 gm. Soda Ash.
N-1	A non-ionic, non-foaming synthetic built with sesquicarbonate.
N-1′	0.76 gms. N-1 plus 25 gms. Soda Ash.
N-1″	2.52 gms. N-1 plus 2.52 gms. Soda Ash.
N-2	Polyethylene oxide condensate, non-ionic.
N-2′	0.42 gms. N-2 plus 25 gms. Soda Ash.
N-2″	1.25 gms. N-2 plus 6.25 gms. Soda Ash.
C-1	A cationic detergent: fatty acid and polyethylene ether derivative of an organoammonium sulfate.
C-1′	1.41 gms. C-1 plus 5.65 gms. Glauber's Salt.
C-1″	2.0 gms. C-1 plus 20 gms. Glycollic acid.
S-1	A solid cake soap plus 25 gms. Soda Ash.
S-2	Liquid "Cocoanut Oil" soap, plus 25 gms. of Soda Ash.

* All weights referred to two liters of solution.

All of the above detergents were tried on an equal-cost basis with the tall oil soap, soda ash standard except S-1 and S-2, in which case the two soaps were used on an equivalent anhydrous weight basis with the tall oil soap. In these tests the conclusions reached are as follows:

1. Among the classes of synthetic detergents tested only non-ionic N-2 shows promise of competing economically with a combination of tall oil soap and soda ash for scouring raw wool stock.

2. The two more expensive soaps tested do not give superior scouring to the low-cost tall oil soap even on an equivalent weight basis, which makes their cost considerably higher.

IV. Conclusions

The method for testing raw wool detergency in the laboratory has been used to demonstrate several process variables with respect to their effect on the scouring system. It is indicated that the temperature, type and concentration of detergent and builder, immersion time and squeeze roll pressure all have an important bearing on the scouring effectiveness. To determine from the generalities the optimum specific conditions for a given plant, machine, and wool blend, detailed study would be advisable. In such cases

the plant conditions should be duplicated as nearly as practically possible. The type of apparatus used for this work is fortunately low in cost, easily assembled, and highly flexible; permitting adjustment to a very broad range of conditions.

Bibliography

1. Leonard and Winch, "A Quantitative Test Method for Evaluating Wool Scouring Detergent Systems": American Dyestuff Reporter, *37*, 202, (1948).
2. Leonard and Winch, "Effective Laboratory Testing of Textile Detergency": Rayon and Synthetic Textiles; *30*, No. 1 & 2; Jan. & Feb. (1949).
3. LeCompte & Greely, "The Effect of Temperature in Scouring Wool": American Dyestuff Reporter, *31*. 453 (1942).

—♦ ♦—

Wetting Tests—

(Concluded from Page P347)

various tests that appear to be widely used. We feel that this paper is to be only a start in more work on wetting tests. We particularly intended to point out that these wetting tests are only partly related to what you are going to get in practice, where we are concerned with the action of wetting agents with starch, with dyestuffs and with a thousand and one things. It would be impossible for us to evaluate all the various things you mention. This type of program should be carried on by individual laboratories. It may interest you to know, however, that if we use a test based on cotton yarn, such as the Draves test, in which there is nothing involved but the natural cotton wax without starch, and then we make a test on a gray fabric which contains starch and other materials, all we find is that the change in these tests simply places the points of the wetting curves at different places on the graph; all of the curves for the particular agent are still parallel. Investigation in our own laboratory on fabrics which have different kinds of size in them, show us that the fundamental slope factor is not changed by sizes and other materials.

Question: Aren't the wetting tests that you discussed based on the sinking of a fabric even before it is completely wet?

Mr. Edelstein: Dr. Draves could answer that question. In the test where we drop a square on the surface of the liquid, our observation is that unless the thing is thoroughly and completely wet it does not drop.

Dr. Draves: The hook permits the cotton skein to lose its buoyancy when only part of the air has been displaced. When you have a hook on the other end of the cotton skein, you add to the general weight of the cotton fiber, so therefore, it is going to sink a certain depth, and a fraction of the air is going to be displaced, depending upon the weight of the hook.

The slope of the curve is apparently quite important, as Mr. Edelstein has pointed out. When you have a steep curve, the product is relatively more efficient at high concentration and less efficient at low concentration. If you have a flatter curve, then the product is relatively more efficient at low concentration than at high concentration. There is one thing that Mr. Edelstein did not bring out. It is interesting that those products which are useful for rewetting must be very effective at high concentrations.

Question: I note that you have dotted lines on some of the curves. Apparently the test does not give a true picture in these ranges?

Mr. Edelstein: What we must point out there is this, that for each of these test methods there seems to be a point in either very fast wetting or very slow wetting where the test falls down. We have put the dotted portions on only a few curves to indicate this. Let's take the case of skein wetting with the three-gram hook. If you get down to two or three seconds wetting you will note that some of these curves are not straight. If you work with the same concentration of wetting agent, but with a different test which gives a 15- or 20-second range, for example, the canvas-square test for that particular concentration, you will find there a range where the test works very well. That is why we recommend two tests which bring in a wide range of concentrations and which will include the more or less complete range of concentrations that you might run into. If you run these two sets of wetting curves, and deal only with your straight lines in making general comparisons, you will have a fairly broad picture of the properties of the wetting agents studied. There is no use continuing a test beyond the point where it gives accurate results, simply because you wish to get information in that particular wetting range. Switch to another test which will give you reproducible results in that range. We have found in our work laboratories which try to make comparisons of wetting agents down in the ranges where the test means nothing.

Question: Isn't the speed of wetting only one of the properties which indicate whether or not a product will be satisfactory for practical work?

Mr. Edelstein: This is certainly true. We have simply tried to point out that even in wetting alone the comparison of results obtained in the laboratory with those obtained in the plant is very complex. Wetting tests cannot tell you exactly how a product will work in the plant. I personally feel that the best that can be obtained from wetting tests is simply a preliminary idea of what might be expected in practical trials.

EMPLOYMENT REGISTER

This column is open for four insertions per year, per member, without charge. Blanks can be obtained from, and filed with, the Secretary of the Association, Lowell Textile Institute, Lowell, Mass. It is understood that these will be open to inspection by prospective employers, who can obtain further information from the Secretary.

49-4

Education: Ph.D., organic chemistry; member Phi Beta Kappa, Sigma Xi.
Experience: Supervision of synthesis, and measurement of properties, of detergents and textile auxiliaries.
Age 39; married, happily employed but nearing end of research project; position in northern U. S. desired.
3-7, 3-21, 4-4, 4-18

49-5

Education: Lowell Textile Institute.
Experience: Textile Chemist and Quality Control Supervisor; Pilot, U. S. Navy Airbranch.
Age 32; married; references; position as Chief Chemist or Quality Control Director desired. 3-7, 3-21, 4-4, 4-18

49-6

Education: Three years college chemistry.
Experience: Chemist and Supt. of Dyeing, 25 years practical experience on woolens, rayons, nylons, silk, etc.
Age 50; married; references; will work anywhere. 3-21, 4-4, 4-18, 5-2

49-7

Education: Clemson College; expecting B. S. in Textile Chemistry, June, 1949.
Experience: U. S. Army and three years as bookkeeper.
Age 26; unmarried but with one dependent; South preferred, but North acceptable. 3-21, 4-4, 4-18, 5-2

49-8

Education: R. I. School of Design, graduating in June, 1949.
Experience: One summer, research asst.; editor of college year book; war service.
Age 25; married; references.
4-4, 4-18, 5-2, 5-16

49-9

Education: Clemson College, Textile Chemistry & dyeing, graduating in June, 1949.
Age 22; unmarried, references.
4-4, 4-18, 5-2, 5-16

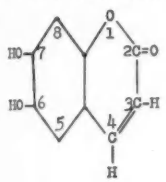
49-10

Education: Bradford Durfee Technical Institute, dyeing and finishing, graduating in June, 1949.
Experience: Summer in dyeing and finishing plant.
Age 22; married; references.
4-18, 5-2, 5-16, 5-30

FLUORESCENT BLEACHING

DR. A. LANDOLT
Ciba Limited, Basle

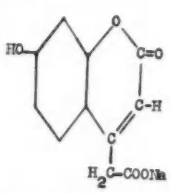
THE history of "Fluorescent Bleaching" starts from an observation made by P. Krais *(1)*, who impregnated semi-bleached flax yarn with a solution of aesculin and noted that a whitening effect was thereby produced equivalent to that of fully bleached yarn. This effect was all the more striking as the aesculin solution was itself colorless and merely exhibited a bluish fluorescence. Aesculin is the glucoside of aesculetin which is found in horsechestnut bark:



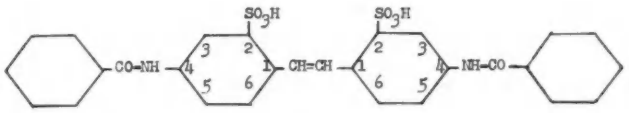
=6,7 dioxycoumarin.

As was to be expected, Krais's observation attracted attention even though the fastness to water and light of the "white dyeing" of aesculin was not such as to encourage development for practical purposes.

The next step in this direction was taken in 1936 by Ultrazelle G.m.b.H. *(2)*, a German firm, which claimed that by treating textiles, such as linen, with a starch containing an admixture of another coumarin derivative, umbelliferone acetate, a chemical or natural bleaching might be dispensed with. Umbelliferone acetate is the sodium salt of 4-carboxy-methyl-7-oxycoumarin:

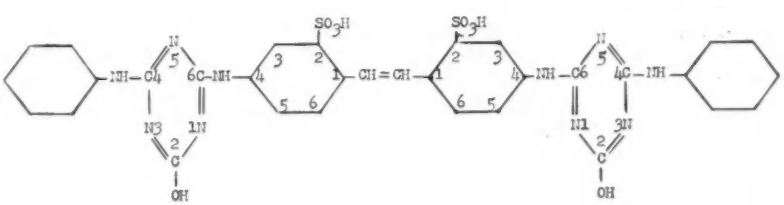


A different starting product for colorless "fluorescent bleaching" had been found even earlier *(3)* by Imperial Chemical Industries Ltd. in a stilbene derivative, an aminostilbene sulfonic acid or a derivative thereof. Cotton yarn was treated for 40 minutes at 175-185°F. by the methods used for applying direct cotton dyestuffs with 3% on the weight of fiber of 4:4'-dibenzoylaminostilbene-2:2-disulfonic acid:



After which the yarn was lifted out, rinsed and dried. It then showed a fine pale bluish fluorescence when illuminated by ultra-violet light, but in daylight it had the appearance of undyed bleached cotton. This discovery paved the way for the production of "fluorescent bleaching" agents *with an affinity for textile fibers.*

A further step was taken by I. G. Farben A. G. *(4)* who claimed that a white effect can be obtained by mixing washing agents with substances which in daylight show a fluorescence from blue-green to violet. The fluorescent admixture should be capable of being taken up by the fiber in the manner of a colorless dyestuff. As instances of such substances, they claimed derivatives of diamino-stilbene $H_2N\text{-}C_6H_4\text{-}CH{=}CH\text{-}C_6H_4\text{-}NH_2$, for example, 4:4'- (bis [2-oxy-4-phenylamino-1, 3,5,-triazyl-(6)])-diamino-stilbene disulfonic acid:



In a further patent *(5)* they claimed thiazole derivatives, derivatives of terephthalic acid, amino- or oxynaphthalene-sulfonic acid, derivatives of anthraquinone, such as anthraquinone-2-sulfonic acid and dyestuffs such as Diazo Fast Yellow 2G (C.I. 654). It was stated that these "fluorescent bleaching" agents can also be applied at the same time as chemical bleaching agents, such as chlorine or hydrosulfite.

It will be seen from the above-mentioned examples that substances of various chemical groups are suitable for "fluorescent bleaching". Although it is not yet known why and under what conditions an organic substance fluoresces, certain laws governing fluorescence as an optical phenomenon have been discovered and these will now be briefly discussed.

By luminescence is meant an emission of light by a substance as a result of causes other than high temperature (thermal radiation). When the emission is excited by light within the visible spectrum it is called photoluminescence, and when excited by radium or X-rays, radioluminescence. Fluorescence is luminescence which ceases to be emitted as soon as the exciting source of light is removed, whereas phosphorescence persists after the exciting radiation has ceased.

Luminescent substances have the property of absorbing part of the incident light and re-emitting it as light of a greater wave-length. By the excitation of the incident light, these substances acquire a color they otherwise do not possess, i.e., they fluoresce. The difference between these substances and ordinary dyestuffs is obvious. If a red dyeing is illuminated by red light it appears red because it reflects red light. If it is illuminated by blue light or any other light which does not contain red light, the red dyeing appears black because there is no red light to reflect and it absorbs all other light.

This is not the case with fluorescent dyestuffs. If dyeings of Victoria Blue B (C.I. 729), Methylene Blue D (C.I. 922) or Fast Green O (C.I. 657) are illuminated by ultra-violet light, in spite of their purity, they appear completely black, since ultraviolet light does not contain

(1). Melliand Textilberichte 1929, 468.
(2). B. P. 472,473. Application date: March 17th, 1936.
(3). A. P. 2,089,413. Application date: July 15, 1935. In Great Britain July 18, 1934.
(4). S. P. 224,613. Application date: August 23, 1941. In Germany: August 31, 1940 and Jan. 14, 1941.
(5). S. P. 225,337. Application date: December 5, 1941. In Germany: December 9, 1940.

TABLE I

Wave length table showing absorption and emission of light by certain organic compounds[6]

Wave-lengths in Angström units

	Absorption (Excitation)	*Emission (Fluorescence)*	*Fluorescence (Color)*
Benzene	2600	6 bands 2600-3000	U. V.
Naphthalene	3300	12 bands 3000-3650	U. V.
Anthracene	3800	4 bands 3800-4550	violet
Naphthacene	4360	4 bands 4500-6500	green
a-Naphthol	4000	3900-5600	blue
a-Naphthylamine-4-sulfonic acid	4000	4000-5600	blue-green
Fluorescein	2400, 4800	5270	green

blue, green or any visible light. But if, for instance, a dyeing of Rhodamine B is illuminated by ultra-violet light, it does not appear black but shows a brilliant yellow-red fluorescence, i.e., it emits visible light. "Fluorescent bleaching" agents behave in a similar way to Rhodamine B (C.I. 749) except that they are in themselves colorless. To produce fluorescence all that is needed is that the substance should absorb the appropriate exciting radiation and be so constituted that it can re-emit the energy in the form of fluorescent light.

The relation between the absorption and emission of light by certain well-known basic organic compounds is shown in Table I.

The table confirms Stokes' law *(7)* discovered empirically nearly 100 years ago which states that fluorescent light always has a greater wave-length than the exciting light. The reason for this phenomenon is to be sought in the fact that light of short wave-length has greater energy than light of long wave-length. Fluorescent substances re-emit in the form of light only *a part* of the light energy they absorb. Fluorescent light has therefore less energy and accordingly a longer wavelength than that of the exciting light.

A fluorescent substance is, of course, only suitable as a "bleaching" agent if its fluorescence produces *greater* brightness and consists of blue to violet light. Whenever the exciting radiation is contained in the ultra-violet spectrum and the fluorescent light is in the visible spectrum, the result is an increase in luminosity, since white fabric treated with a "fluorescent bleaching" agent of this type not only reflects the visible daylight by which it is illuminated but also the fluorescent light re-emitted from the absorbed invisible ultra-violet rays. This explains why dyeings of fluorescent dyestuffs such as Rhodamine, Phosphine or Auramine as well as "fluorescent bleaching" agents yield brilliant shades, the degree of luminosity depending on the amount of ultra-violet light contained in the daylight. Fluorescence disappears in monochromatic visible light, which contains no ultra-violet rays.

(6). Taken from P. Pringsheim and M. Vogel: "Luminescence of Liquids and Solids," New York, 1946.

We are now in a position to resume the properties required of a satisfactory commercial "fluorescent bleaching" agent. The substance must have an affinity for textile fibers and must show fluorescence of the appropriate color. It must be in itself colorless to avoid imparting an undesirable tone to the fibers. The problem has been successfully dealt with by several chemical firms who have put the following "fluorescent bleaching" agents on the market:—

Blankophor B, R, WT (I.G. Farben A.G.) *(8)*.

Tinopal BV (Geigy)*(9)*.

Uvitex RS, WS (Ciba)*(10)*.

These products possess affinity for the fibers in greater or less degree and can therefore be applied by the methods used for dyeing direct cotton dyes.

Uvitex RS is suitable for producing a "fluorescent bleach" on cellulosic textile fabrics whereas Uvitex WS is used for "bleaching" wool, nylon, natural silk and acetate rayon. As a general rule, it may be stated that the cleaner the fabric before treatment the better the white obtained by "fluorescent bleaching".

(7). G. Stokes, Phil. Trans. 143,463 (1852).
(8). Circular issued by I. G. Farben A.G.
(9. E. C. Caspar, Textilrundschau *2*, 1947, 212.
(10). Uvitex RS & WS are patented products manufactured by Ciba, Limited.

Uvitex RS

Uvitex RS is readily soluble in water, neutral in reaction, and is stable to, and can therefore be applied along with, chemical bleaching agents such as sodium hypochlorite or hydrogen peroxide. Uvitex RS should not be used at the same time as hydrosulfite preparations, nor should "bleaching" be carried out in an acid medium. The fastness properties of Uvitex RS are comparable with those of ordinary direct cotton dyes. The product is best applied in the last rinse water or in the finishing liquor.

The substantivity and rate of exhaustion of Uvitex RS are illustrated in the graphs which show the degree of brightening obtained under various conditions. The degree of brightening is measured as the amount of *fluorescent light in the visible spectrum* emitted as a result of illumination by ultra-violet rays. The luminosity is measured by means of a photocell *(11)* and the test piece is compared with a standard fluorescence plate which is taken to represent 100% brightness. According to this definition of brightening, unbleached or chemically bleached fibers show no brightening and represent 0% brightness.

Figure 1 shows the degree of brightening obtained on cotton material by applying Uvitex RS by the exhausting and the padding methods. In the exhausting method, besides the percentages of Uvitex RS given above, 5 gms. per liter Glauber's salt cryst. were added and the cotton was treated in a goods/liquor ratio of 1:20 at 70°F. Padding was carried out with 100% pick up of the liquor. The percentage of Uvitex RS remaining in the bath after working by the exhausting method can be calculated from the difference between curves I and II, since the initial percentage, calculated on the weight of the cellulose, was in both cases the same.

(11). Textilrundschau *1*, 1946, 44.

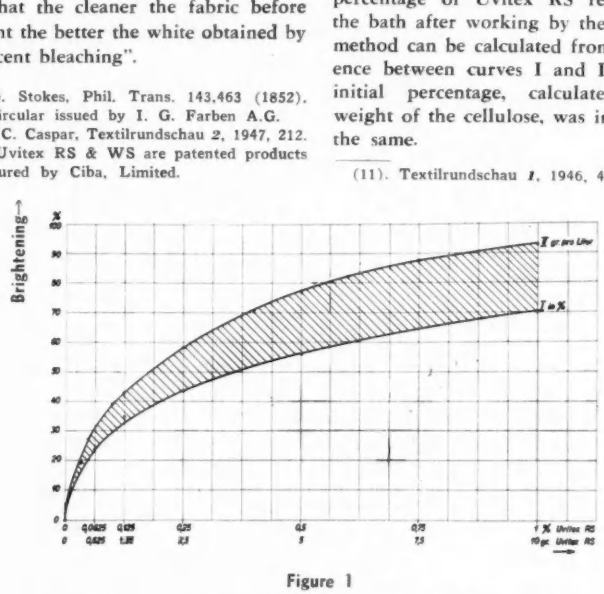


Figure 1

Effect of Concentration of Uvitex RS on the Brightening of Cotton
I—Exhausting method
II—Padding method
II—I = % Uvitex RS in bath after exhaustion

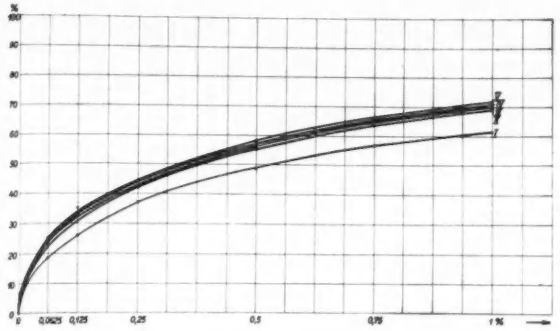


Figure 2

Effect of Different Concentrations of Glauber's Salt and Uvitex RS on the Brightening of Bleached Cotton.
I—No Glauber's salt
II— 2.5 gms. per liter Glauber's salt
III— 5.0 gms. per liter Glauber's salt
IV—10.0 gms. per liter Glauber's salt
V—20.0 gms. per liter Glauber's salt
Uvitex RS calculated on weight of material. Dyed at 70° F., 1:20 liquor, ½ hour.

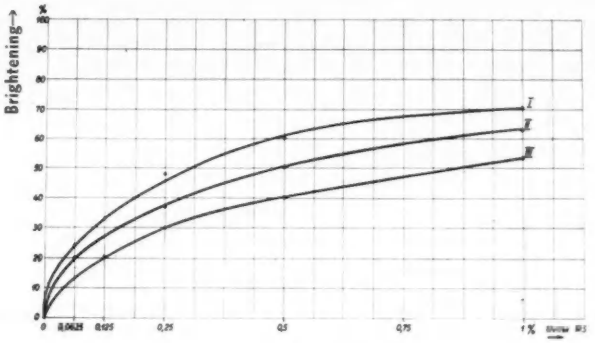


Figure 3

Effect of Temperature and Different Concentrations of Uvitex RS on the Brightening of Bleached Cotton.
I— 70°F.
II—105°F.
III—140°F.
1:20 liquor, ½ hour with the addition of 5 gms. per liter of Glauber's salt crystals.

Figure 2 shows the effect of additions of Glauber's salt when applying Uvitex RS by the exhausting method. It is clear that very small additions suffice to produce satisfactory exhaustion.

Figure 3 shows the effect of dyeing at different temperatures. The affinity is greatest in cold baths.

Figure 4 shows the affinity of Uvitex RS for the different types of cellulosic fiber. Cotton has the greatest affinity, pigmented viscose the smallest.

Uvitex WS

The bleaching of wool has hitherto been carried out almost exclusively by means of oxidizing or reducing bleaching agents. Apart from the risk of damaging the fiber which may occur when bleaching by these methods, the effect is never entirely satisfactory as the bleached wool still retains a faint yellowish tinge. Attempts have been made to bleach wool with other "fluorescent bleaching" agents, but none was a complete success. A very satisfactory white effect can, however, be obtained with Univex WS on wool, nylon, natural silk and acetate rayon. The brilliance and purity of the white effect depend, of course, on the degree of previous cleansing and bleaching. A pure white cannot be obtained on material with a marked yellow tint.

Uvitex WS is readily soluble in water, neutral in reaction and dilute solutions show a bluish fluorescence. Wool, nylon, natural silk and acetate rayon are treated for ½ hour at 105°F. in a bath containing 0.5-5% Uvitex and 5% acetic acid 40%, on the weight of the material, then rinsed and dried.

Figure 5 shows the substantivity of Uvitex WS under different pH conditions. It should be noted that wool itself, like all keratinous substances, shows a certain amount of fluorescence. This fluorescence has been allowed for on the ordinate scale.

From Figure 6 it can be seen that the affinity of Uvitex WS is greater the higher the temperature, but that the new product comes very near to attaining its maximum affinity when applied at 105°F.

Summary

Two new "fluorescent bleaching" agents have been described, one of which is suitable for "bleaching" cotton, the other

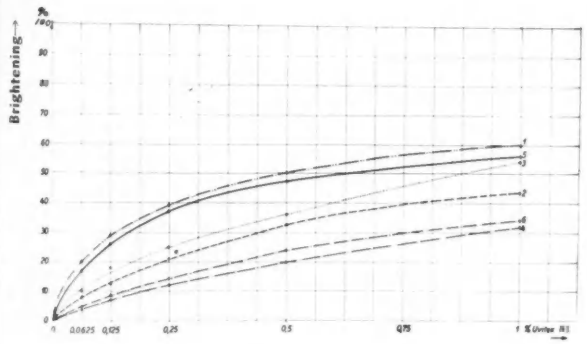


Figure 4

Effect of the Concentration of Uvitex RS and the Influence of the Type of Fiber on the Brightening of Cellulose Fibers.
1—Bleached cotton
2—Bleached spun rayon
3—Bright viscose rayon
4—Pigmented viscose rayon
5—Bright Bemberg rayon
6—Pigmented Bemberg rayon
Bath contains 5 gms. per liter of Glauber's salt crystals, 1:30, 70°F.

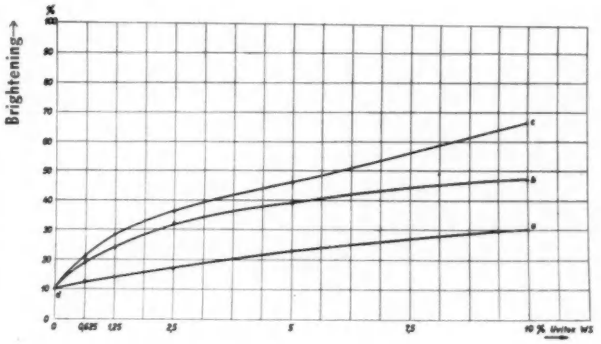


Figure 5

Effect of pH and Concentration of Uvitex WS on the Brightening of Wool
a—Neutral
b—5% acetic acid 40%
c—5% sulfuric acid
d—Natural fluorescence of wool
Temperature—105-115°F.

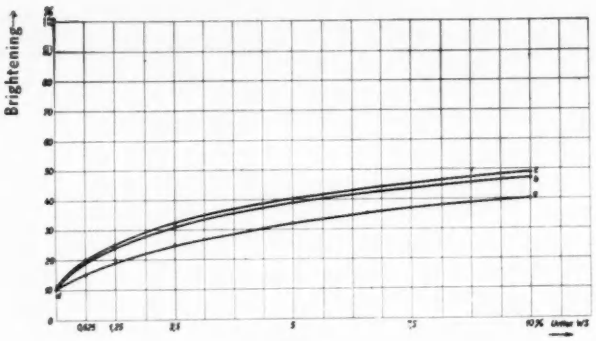


Figure 6

Effect of Temperature and Concentration of Uvitex WS on the Brightening of Wool.
a— 70- 80°F.
b—105-115°F.
c—175-190°F.
d—Natural fluorescence of wool
Treatment: ½ hour with 5% acetic acid, liquor ratio, 1:40.

for "bleaching" wool, nylon, natural silk and acetate rayon. The affinity of the two products for the fibers under varying conditions was illustrated by means of curves indicating the degree of brightening attained. By brightening is meant the fluorescent light emitted in the visible spectrum and reflected by the treated goods. The "fluorescent bleaching" agents known today belong to different chemical groups. They are mostly colorless substances which show a bluish or violet fluorescence in solution. Their one main difference from fluorescent dyestuffs lies in their having no color of their own.

"Fluorescent bleaching" agents are of great importance for producing a pure white effect on textile and paper fibers, since they make it possible to shorten the methods of bleaching hitherto employed without exerting any detrimental effect on the mechanical properties of the fibers.

TRADE NOTES • NEW PRODUCTS

K. H. Klipstein

• Consolidation of Research Development and Technical Service at Calco

A consolidation of Research, Process Development and Dyes Technical Service into a single department has been announced by S. C. Moody, Vice President and General Manager of Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey.

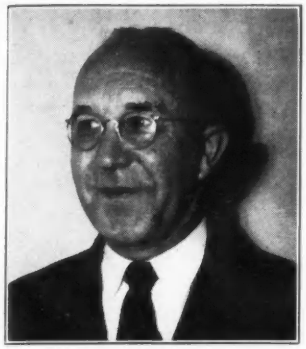
The new department will be known as the Research and Development Department. K. H. Klipstein, Assistant General Manager, Calco Chemical Division, American Cyanamid Company, in charge of the department, stated that "the growing need for better integration and co-ordination between Research, Process Development and Technical Service as a result of the Company's expansion, necessitated the consolidation." Mr. Klipstein pointed out that it would now be possible to place greater emphasis on improvement of quality and more effective utilization of the Company's products. A third important consideration is that it will permit the bringing to bear on each problem, specialized knowledge and skills without crossing departmental lines.

Dr. H. Z. Lecher, since 1938 Associate Director of Research, has been named Director of Research in charge of the Chemical Research Section. Dr. Lecher, a native of Vienna, Austria, studied chemistry at the University of Munich where he obtained his Ph.D. degree in 1913. He taught organic chemistry at the same university from 1920 to 1922 and from 1922 to 1927 was professor of chemistry at the University of Freiburg (Boden). Dr. Lecher went to the I. G. Farben Industries in 1927 to direct their research on synthetic rubber in Leverkusen where he played a leading role in the development of the Buna rubbers. From 1928 to 1932 he was director of the main research laboratory in Leverkusen. Dr. Lecher came to this country in 1932 to direct the research on dyes at Calco. In 1938 he was appointed Associate Director of Research and it was in this capacity that he directed mainly Calco's research program in the fields of dyes and pigments.

H. Z. Lecher

Mario Scalera

Dr. Mario Scalera, appointed Assistant Director of Research in charge of the Organic Research Section, is a native of Italy who came to this country in 1927. He attended Yale University and received his B.S. degree in 1932 and a Ph.D. degree in 1935. Joining Calco as a research chemist, Scalera later directed a research group on vat dyes. He was appointed as Assistant Director of the Organic Research



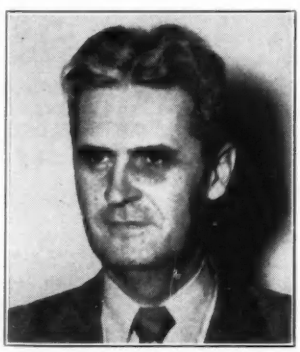
R. H. Kienle

Section in 1945, and was responsible mainly for research on vat dyes, soluble vats, pigment and brighteners.

Dr. R. P. Parker, as Assistant Director of Research, will be in charge of the Pharmaceutical Research Section. Dr. Parker received his Ph.D. degree from Yale and joined the Calco organization in 1933 as a student trainee. He was appointed an assistant to Dr. M. L. Crossley, Research Director, in 1946 and in 1947 was named an Assistant Research Director.

Dr. R. H. Kienle, well-known to the coating industries particularly for his fundamental work in polymers and in alkyd resins, has been named Director of Application Research. Dr. Kienle, a native of Easthampton, Mass., received his B.S. degree from Worcester Polytechnic Institute and his M.S. degree from Union College. After doing special graduate work at Massachusetts Institute of Technology and Rutgers University, he received his Ph.D. degree from Rutgers in 1938. Formerly with the General Electric Company for fourteen years, Dr. Kienle has been associated with Calco for the last fifteen years.

Dr. A. L. Peiker, formerly Manager of the Dyes Technical Service, has been appointed Associate Director of Application Research. He received his B.S. and M.S. degrees from Trinity College, Hartford, Connecticut, and his Doctorate from McGill University, Montreal, Canada. He joined the Calco Research Department, Physical Chemical Section, in 1934. In 1940 he became an Assistant Director of the Physical Chemical Research Section and several years later was appointed Associate Manager of Dyes Application Laboratory.



A. L. Peiker

Dr. M. L. Crossley, under whose direction Calco's Research Department has been developed into one of the nation's most important industrial research centers, is retiring in August, 1949. Dr. Crossley will act as special consultant to Mr. Moody, General Manager, and to the heads of the Research and Development Department.

• Wooncopen No. 10

Woonsocket Color & Chemical Co., Woonsocket, Rhode Island, announces the development of a synthetic detergent known as Wooncopen No. 10. It is stated that this product is not affected by weak acids or alkalies nor is it susceptible to mineral salts, such as bichromate of potash or soda. It is claimed that it is an ideal water conditioner when used in hard water and with soap it has the property of causing the lime and magnesium salts formed to precipitate in a very finely divided state, which precipitate does not alhere to the fiber. According to the manufacturers, Wooncopen No. 10 is useful as a boiling out and scouring assistant, wetting out and leveling agent, dissolving aid for dyes in powder form and as a sizing and finishing aid.

• New PTI Offices

The Philadelphia Textile Institute Foundation has established new general offices on the site of the new Philadelphia Textile Institute, 3243 School House Lane, Philadelphia 44, Penna., it has been announced by Emil R. Pohlers, Executive Director of the Foundation.

These offices will house the facilities formerly situated in Room 1200, Land Title Building, and in Room 1803, 257 Fourth Avenue, New York City.

The Foundation's P.T.I. Development Fund, headed by National Chairman Charles W. Carvin will operate from the new office under the supervision of Emil R Pohlers, Executive Director and his assistant, Stuart H. Carroll.

• To Expand Phosphorus Production

The Westvaco Chemical Division of Food Machinery & Chemical Corporation has arranged for a further expansion of facilities to produce elemental phosphorus and a variety of phosphates. A second electric phosphorus furnace will be installed at its Pocatello, Idaho, plant. Provisions for such an installation were made in the design of that plant, and power and material contracts covering the requirements of the second unit had also been arranged. Facilities for converting phosphorus from the second unit to soluble phosphates are being provided through an expansion of the Division's Cartaret, New Jersey, phosphate plant and through the erection of a new phosphate plant on the Pacific Coast. An engineering-construction contract covering all these jobs has been let to United Engineers & Constructors, Incorporated, of Philadelphia. All critical and long delivery equipment has been on order for some time. Construction schedules call for completion of the new furnace on January 1, 1950, with the associated phosphate facilities being ready in time to receive and process the new phosphorus supply.

• Textile School Deans Meeting

The demand for employment of textile school students who will graduate this June from the nation's various textile schools continues just as strong as it was last year, William D. Fales, head of the Textile School of the Rhode Island School of Design, told the National Council of Textile School Deans which held its semi-annual meeting at the Institute of Textile Technology in Charlottesville, Va., March 21-23.

The textile schools will graduate a total of 818 students this year, an all-time record, according to Mr. Fales, but despite this large number, the demand for their services in the industry is also at a peak.

The number of last year's graduates also set a record, and the educators felt at that time that the employment demand would show a decrease this year. But, surprisingly enough, this has not proved to be the case, Mr. Fales told the council.

Dr. Hugh M. Brown, dean of the Clemson College Textile School, was elected president of the Council at the concluding session of the three-day convention. He was elevated from the vice-presidency. Other officers elected included Richard S. Cox, dean of Philadelphia Textile Institute, vice-president, and Edward T. Pickard, Textile Foundation, Washington, D. C., re-elected secretary-treasurer.

Kenneth R. Fox, president of Lowell Textile Institute, announced plans for a textile teachers' conference to be held at Lowell this June. This will be the first meeting of its kind, Mr. Fox said.

The part that research should play in the textile schools was the subject of a dis-

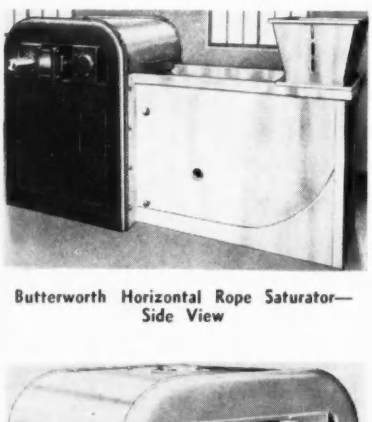
cussion led by Malcolm Campbell, dean of North Carolina State Textile School. Mr. Campbell pointed out that the textile industry is becoming more and more research-conscious.

A number of other discussions occupied the deans. These included such subjects as the relative merits of a general education in the textile field against individual specialization; consideration of a one-year textile course for liberal arts graduates; and the accrediting of textile engineering education.

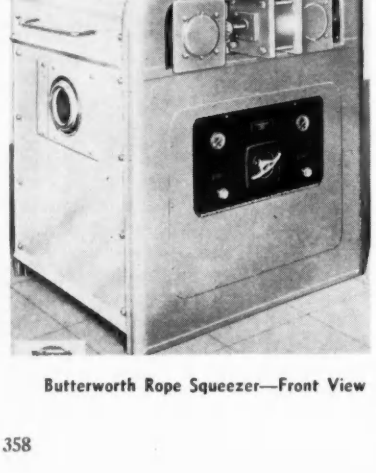
• New Butterworth Saturator and Squeezer

H. W. Butterworth & Sons Company, Philadelphia, Pa., announce a new horizontal rope saturator and a new rope squeezer for continuous bleaching. Higher speeds, better bleaching and better handling of goods are now said to be possible with these new machines during continuous bleaching operations. They are more flexible than conventional equipment because the principal parts are interchangeable. Frame work, bearings, rolls, air cylinders and control mechanism of the rope squeezer are interchangeable with the saturator.

It is claimed that appreciable savings in production time are now possible and that actual production tests have shown savings of 40 percent in labor costs alone; 25 percent less floor space is used. Production speeds as high as 300 yards per minute can be obtained with this equipment.



Butterworth Horizontal Rope Saturator—Side View



Butterworth Rope Squeezer—Front View

It is stated that some of the new features and advantages incorporated in the new Butterworth machines are: faster operating speeds; streamlined design; closures made of stainless steel; rollers completely enclosed to protect workers and keep dirt out; compact, easy to reach controls; gentler handling of goods; 3-position poteye panels, plus many edditional features.

• Stainless Steel Beakers

A line of stainless steel beakers for laboratory use is now being made in production quantities by Metalsmiths division of Orange Roller Bearing Co., Inc., Orange, N. J., in the same capacities and dimensions as standard glass beakers. This is made possible by the development of special tools and fixtures, plus the use of fully automatic inert gas shielded-arc welding machines. It is stated that Metalsmiths beakers are made with smooth, homogeneous butt welds, using no filler or flux. Finished beakers are polished all over and welds are invisible. They are available from stock in type 304 Stainless Steel and Monel metal, but can be fabricated of other analyses when required. Other stock items in the line of Metalsmiths corrosion resistant utensils include pails, measures, dippers, funnels, scoops, buckets, batch cans, shovels and stock pots.

• Joins National Cotton Council

Robert E. Stevenson has joined the staff of the National Cotton Council as a member of its technical service department. Mr. Stevenson, a graduate of Bucknell University, is a specialist on finishing applications to textiles, with particular emphasis on application of shrinkproofing and crease-proofing resins and the use of textile auxiliaries for scouring, dyeing, and finishing.

• Solvay Chlorine Bleach Bulletin

A new 68 page technical bulletin, of interest to all manufacturers and users of chlorine bleach solutions has been issued by Solvay Sales Division, Allied Chemical & Dye Corporation.

This new bulletin, the 14th in Solvay's series, takes up the general properties of hypochlorous acid and its salts, the types of industrially important bleach liquors, and the preparation of bleach liquors. Chlorination equipment and the production of chlorine bleaches are also discussed; each subject illustrated with tables, charts and graphs.

Solvay Technical & Engineering Service Bulletin No. 14, *Chlorine Bleach Solutions,* is offered without charge. Copies may be obtained by writing Solvay Sales Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, New York.

• du Pont Appointments

The appointment of three new research supervisors and the creation of a new research position concerned with dyes was announced recently by the Rayon Technical Division of E. I. du Pont de Nemours & Company.

Dr. Robert E. Wilfong, research chemist in the acetate research section at Waynesboro, Va., Dr. Linton G. Ray, Jr., and Dr. John P. Wilkins, research group leader in the rayon pioneering research section at Buffalo, N Y., were promoted to research supervisors. Dr. Chiles E. Sparks, a research supervisor in the rayon pioneering research section at Buffalo, was transferred to Wilmington as coordinator of dye work on fibers and will be liaison with the Organic Chemicals Department group working in the same field.

• New U. S. Rubber Laboratory

United States Rubber Company will build a new $250,000 laboratory for textile research and development at Winnsboro, S. C., it was announced recently by H. Gordon Smith, vice president and general manager of the company's textile division. The new laboratory will permit the consolidation of the research and development work previously carried on in Winnsboro, in Hogansville, Ga., and elsewhere, and will provide for substantial expansion of these activities.

S. H. Sherman, manager of the textile division development department, will move his headquarters from Hogansville to Winnsboro and will be in direct charge of the laboratory under the general supervision of R. C. Harrington, technical director of the textile division, New York.

• New Bedford Textile Institute Honored

On March 12, the New Bedford Board of Commerce was the sponsor of a testimonial dinner honoring the elevation of the New Bedford Textile Institute to a four year college level establishment. The

local business, civic, and industrial leaders with the state and local government and labor officials were among the several hundred individuals who gathered at the New Bedford Hotel for the occasion.

The principal speaker was Thomas H. Buckley, chairman of the State Commission on Administration and Finance. He pictured a possible extension of the institute's activities into the general educational fields by the addition at some future time of a general junior college division. Institute President George Walker told of some of the immediate future needs of the institute. Dr. John J. Kelly, president of Bridgewater State Teachers College, and John A. Shea, chairman of the Institute's Board of Trustees, reviewed the events that preceded the raising of the institute to its present status. President John H. Grady, of the Textile Institute Alumni Association pointed out the accomplishments of the graduates of the school.

Board of Commerce President Arthur S. Francis and Mayor Arthur N. Harriman of New Bedford congratulated the faculty and trustees whose efforts brought about the present status that came into being when, last November, the Board of Collegiate Authority approved the new and revised courses at the institute as satisfactory for the requirements of the degrees that may be granted under Section 46B of the Acts of 1947, passed by the Massachusetts legislature.

The expansion of the courses at the New Bedford Textile Institute necessitated several additions to the faculty. Since the beginning of the 1948-49 school year, Augustus Silva, A.B., New York University, M.A., Columbia University and Leo M. Sullivan, A.B., Worcester State Teachers College, M.A., Columbia University, have joined the Department of Humanities. David W. Saltus, B.S., and M.A., Harvard University has been added to the Department of Engineering staff. Ferdinand P. Diocchi, B.S., Tufts College brought many years of practical experience to the Department of Chemistry when he became a member of its staff.

The expanded courses at the New Bedford Textile Institute as approved by the collegiate authority, permit the institute to officially offer to September 1949 Freshman curricula leading to degrees of Bachelor of Science in Textile Engineering, Textile Chemistry or Machine Design.

• Printon Elected President of Nopco

The board of directors of Nopco Chemical Co., Harrison, N. J., has announced the election of Thomas A. Printon as President. Mr. Printon succeeds Charles P. Gulick, one of the company's founders and president since 1932. Mr. Gulick will continue as Chairman of the Board.

Thomas A. Printon

Mr. Printon was graduated from Boston College in 1917. He served in World War I in the Overseas Transport Service.

He joined Nopco in 1922 as a salesman and later became New England district manager. Shortly afterward he was transferred to the Company's Harrison office in charge of the Textile Division. He was elected a director in 1936 and a Vice-President in 1938.

• Officers of Meredith, Simmons

Meredith, Simmons & Co., Ltd., the Canadian subsidiary of National Starch Products Incorporated, announces the election of Arthur B. Meredith to chairman of the board. Other officers include Frank Greenwall, president, Ronald M. L. Francis, executive vice president and general manager, and Ernest Hofmann, vice president in charge of operations at Montreal.

The activities of Meredith, Simmons will be closely coordinated with the sales, service, and manufacturing operations of the parent company. Berkeley V. Schaub, present New York sales manager, will assume the position of Toronto sales manager.

• Prices Lowered on Reducing Agents

Rohm & Haas Company, Washington Square, Philadelphia 5, Pa., announces a reduction in price on Lykopon, Formopon, Formopon Extra and Protolin W. The reductions were effective on March 28th.

• Catalyst AC Available in Larger Quantities

Catalyst AC, previously restricted in production, is now available in larger quantities to meet requirements of textile mills, E. W. Gamble, Jr., director of the Textile Chemicals Department of Monsanto Chemical Company's Merrimac Division has announced.

"This new curing agent for melamine and urea resin finishes, a product of Monsanto research, has proved advantageous because of its longer bath life, faster curing time and greater compatibility with softeners and penetrants," Mr. Gamble said. "With higher bath stability, there is no need for constant cooling of the pad box," he added.

It is claimed that reports from finishers to Monsanto attest that fabrics with softer hands are possible with Catalyst AC and that it induces better resin retention with a consequent improvement in washfastness.

• Corrosion-Resistant Valve Catalog

Crane Co., 836 S. Michigan Ave., Chicago, has published a 32-page circular No. 320, entitled "Corrosion-Resistant Piping Materials." The booklet contains descriptions and information on the complete Crane line of valves, fittings, fabricated piping and pipe coils to meet a wide range of corrosive conditions. It also contains eight pages of condensed recommendations, description of alloy materials, and corrosion questionnaire.

• Service Division at Hilton-Davis

A new Customers' Service Laboratory Division has been inaugurated by Hilton-Davis, Cincinnati, to cooperate closely with customers on the control, standardization and development of pigments, dyes, varnishes and related products, Nelson S. Knaggs, vice-president in charge of sales, has announced.

Richard Van Vyven, who established the Standards Department for Hilton-Davis in 1940, has been placed in charge of the new division.

• Joins Research Laboratories Corp.

Amos K. Hobby, formerly Chief Chemist and Director of Research and Development, Woonsocket Color & Chemical Co. has joined Research Laboratories Corporation, P. O. Box 388, Durham, N. C. as vice president and director of Chemical Research. Mr. Hobby's work will focus on the development of treatments for mothproofing, flameproofing, etc., as well as production, controls and testing of processed fabrics, rugs, etc.

• Joins Houghton Research Department

Paul J. Welsh has joined the research staff of E. F. Houghton & Co., Philadelphia manufacturer of industrial oils, chemicals and leathers, it has been announced by A. E. Carpenter, president of the company. He will specialize on research on resins for textile applications, a field in which Houghton is rapidly expanding its research activities.

Before joining Houghton, Welsh was on the development staff of B. F. Goodrich Company, Akron, Ohio. During the war he served as a Navy radio technician in the western Pacific. Before the war he was employed for three years by the Bureau of Mines in Bruceton, Pa.

A graduate of Carnegie Institute of Technology in 1938, he went on to receive his master's degree in science at the same institution the following year. He is a member of the American Chemical Society.

• Annual Meeting of Mathieson

Stockholders of Mathieson Chemical Corporation held their annual meeting at the company's offices in Saltville, Va., on March 29. Following the election of directors, Thomas S. Nichols, president and chairman of the board, reported to the stockholders on the management of the company and advised that Mathieson had taken over the operations of Standard Wholesale Phosphate & Acid Works, Inc., and Southern Acid & Sulphur Co., Inc., on April 1. On that day, the transfer of stock by which Mathieson acquired the assets of these companies was effected.

It has been decided, Mr. Nichols stated, to discontinue the names of both of the acquired companies immediately and to conduct all activities in the name of Mathieson Chemical Corporation.

The directors elected are Howard Beery, H. Donald Campbell, Arnold B. Chace, John P. Chase, J. C. Leppart, Thomas S. Nichols, Sinclair Richardson, Robert C. Stone, and A. P. Winsor.

• Trade Show Clinic

The first annual trade show clinic under the auspices of the Exhibitor's Advisory Council has been scheduled for May 26 at the Statler Hotel, New York, it was announced today by R. H. DeMott, president of the organization, and vice-president of SKF Industries, Inc., Philadelphia. In announcing the meeting, DeMott stressed that anyone interested in industrial exhibitions is welcome.

The clinic is being established to make industrial exhibitors, public relations and advertising men, and trade publication editorial personnel better acquainted with the background and problems of trade shows, and to point the way to further improving the trade show as a sales medium.

The one-day meeting will feature a morning session of talks by leading authorities on industrial exhibits, and three afternoon panel discussion periods.

The EAC clinic committee is headed by F. L. Triggs, advertising manager, Riegel Textile Corp., New York, and will be co-chairmaned by D. C. Miner, advertising manager, E. F. Houghton & Co., Philadelphia. Serving with them are Samuel Y. Hyde, American Can Company, New York; E. R. Fiske, Jr., Advertising Division, Leeds & Northrup Co., Philadelphia; and R. P. March, assistant advertising manager, Worthington Pump & Machinery Company, Harrison, N. J.

• Report on Imports of Coal-Tar Products

The United States Tariff Commission recently issued a report on United States imports of coal-tar products entered in 1948 under paragraphs 27 and 28 of the Tariff Act of 1930. The report gives detailed statistics on coal-tar intermediates entered under paragraph 27 and dyes, medicinals and pharmaceuticals, flavor and perfume materials, and other finished products entered under paragraph 28.

In 1948 imports under paragraph 27 totaled 2 million pounds, valued at 1.1 million dollars, compared with 2.6 million pounds, valued at 530 thousand dollars, in 1947, and 3.1 million pounds, valued at 437 thousand dollars, in 1946. In terms of quantity, imports in 1948 came chiefly from Belgium, the United Kingdom, Germany, and Italy; in terms of value, however, Switzerland was first, followed by Belgium, the United Kingdom, France, Italy, and Germany. For the first time since before the war sizeable imports of coal-tar intermediates, in both quantity and value, were reported from both Germany and Italy. The most important intermediates imported in 1948, in terms of quantity, were phthalic anhydride, for alkyd resins, plasticizers, and dyestuffs, principally from Belgium and Italy; o-cresol, for the plastics industry; from the United Kingdom, Australia, Canada, and Switzerland; anl β-naphthol, for the dye industry, principally from Germany.

Imports of finished coal-tar products under paragraph 28 in 1948 totaled 1.6 million pounds, valued at 3.4 million dollars. Corresponding imports were 1.4 million pounds, valued at 2.3 million dollars, in 1947 and 2.0 million pounds, valued at 2.6 million dollars, in 1946. The large increase in value recorded in 1948 compared with 1946 and 1947 is due chiefly to the increase in the unit value of imports of medicinals and pharmaceuticals. As in former years, dyes constituted the most important group in imports of finished coal-tar products and came almost entirely from Switzerland. Imports of dyes in 1948 were greater in terms of value than in 1947, and accounted for 2.7 million dollars, or 78 percent of the total value of all imports under paragraph 28 in 1948, compared with 2.0 million dollars, or 88 percent of the total value in 1947. Medicinals and pharmaceuticals came principally from Switzerland and ranked next to dyes in total value of imports, amounting to 692 thousand dollars, or 20 percent of the total value of imports under paragraph 28, compared with 129 thousand dollars, or 6 per cent in 1947. Among the remaining groups of finished products, the total value of imports of flavor and perfume materials declined from 84 thousand dollars in 1947 to 49 thousand in 1948 and all other finished coal-tar products, chiefly synthetic resins, from 53 thousand in 1947 to 34 thousand dollars in 1948.

The statistics given in the report were obtained by analyzing invoices covering imports through all United States customs districts.

Copies of the report may be obtained by writing the United States Tariff Commission, Washington 25, D. C.

• Sjostrom Purchases Plant

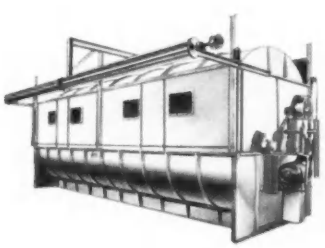
Sjostrom Machine Company, textile and laundry machinery manufacturers of Lawrence, Massachusetts, have recently purchased the plant machinery and equipment of the Lloyd Churbuck Machine Company located in the Everett Mill Properties in Lawrence, Massachusetts. This is the first step in the expansion program of this company. Additional space has been contracted for and the new machinery and equipment will be installed and in operation by July 1st of this year.

WET PROCESSING
EXPOSITION
NUMBER
Will Appear
MAY 30, 1949

One of a series painted for Rodney Hunt by Ben Stephenson

FAMOUS FINISHES . . *The 6-metre boat "Goose" crosses the finish line less than one minute ahead of her competitor, the Swedish "Maybe VI," to win the 1948 Gold Cup series, held in September off Oyster Bay, Long Island. This marked the fourth time in ten years that the "Goose" captured the coveted Gold Cup.*

VERNEY is famous for its "finishes," too! The Verney Corporation's Finishing Division has long been outstanding for the fine finishes of its dress and menswear fabrics. Helping them keep ahead in quality and costs has been the exclusive use of modern Rodney Hunt "Tru-Shade" Dye Becks with their unique patented "Curve-of-Strength" construction. Wherever you find "famous finishes" in textiles, you're apt to find the famous finishing equipment of "Rodney Hunt." You are invited to turn the page for more specific information about "Finishing For Profit."



RODNEY HUNT

RODNEY HUNT

Established 1840

ORANGE 10, MASSACHUSETTS, U. S. A.

"Tensitrol," "Tru-Shade," "Slack Loop," "Wring-Master," and "Curve-of-Strength" are registered trade marks identifying textile finishing machinery manufactured exclusively by Rodney Hunt Machine Co.

Finishing For Profit

RODNEY HUNT

Established 1840

RODNEY HUNT MACHINE CO.

ORANGE 10, MASSACHUSETTS, U.S.A.

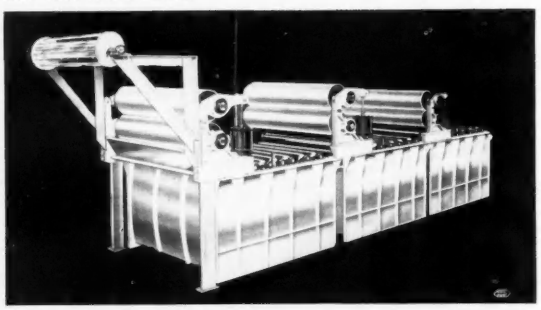
Trouble-Free "Tensitrol" Washers Synchronized with Dryers on Rayons

"TENSITROL" Open Width Washers operating on all types of rayon fabrics have proved so trouble-free that they have been *synchronized with the dryers* at one of the world's largest rayon manufacturing and finishing plants.

Other "Tensitrol" Washers at the plant are also operating on open width rayons at *speeds in excess of 100 yards a minute,* compared to the previous maximum speed of 60 yards a minute.

Completely tensionless operation—obtained with no change in speed of any moving part of the "Tensitrol" Washers — made that 66% production increase possible. Damage to the most delicate of rayons, from pulling and hauling under previous methods of washing, was ended in the "Tensitrol" Washer because the fabrics were free to shrink or stretch at any point in the machine.

Tangles are similarly unknown. Time lost under previous makeshift methods, aimed at continuous processing, has been eliminated.

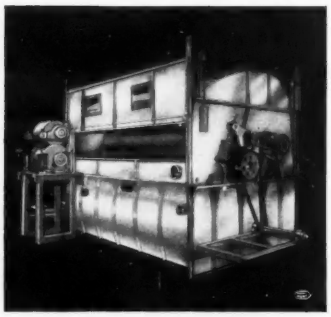


Substantial savings in horsepower requirements, floor space, and water consumption have all been noted by officials at the rayon plant. The proved efficiency of "Tensitrol" Open Width Washers is now available to finishing plants everywhere.

★ ★ ★

Most Versatile Machine in Wet Finishing Plants

"SLACK LOOP" machines, made exclusively by Rodney Hunt, will be found in finishing plants throughout the world, being used for: Bleach washing of sheetings at 150 yards a minute; washing lace curtains free of graphite; rope soaping cotton prints at 150 yards a minute; continuous tinting and sizing of curtains at high speed; continuous washing of lace dress fabrics; rope soaping rayon prints without mark-off; high speed processing of terry toweling without distortion; scouring and caustic boiling.

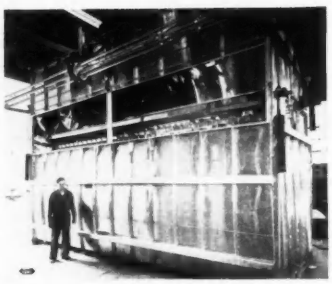


Not only are "Slack Loop" machines the most versatile, but are the highest speed of their type. At speeds up to 150 yards a minute, they operate with unmatched efficiency in any of the operations listed above and cause fewer stoppages caused by tangles or tight strands.

★ ★ ★

World's Largest Dyeing Machine

THE twenty-foot Rodney Hunt "Tru-Shade' Dyeing Machine pictured here is the world's largest and is now in operation on wool blends.



The patented "Curve-of-Strength" stainless steel tub easily withstands the pressure of nearly thirty tons of dye liquor without flexing. The tub itself is seven feet deep and the dyeing machine as a unit, with its fully enclosed top, stands sixteen feet in the air.

While the "Curve-of-Strength" makes it possible to build tubs of this size or of even greater dimensions, the patented "pipe body" construction of the twenty-foot reel permits great weights of fabric to be carried without sign of twisting or distortion.

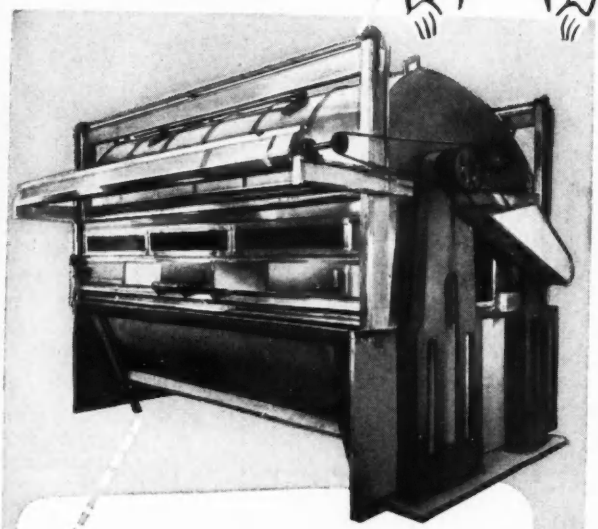
"Tru-Shade" Dye Kettles and Dye Becks are readily available in a large range of sizes in stainless steel, with equipment to fit any need.

★ ★ ★

If further information is desired on the above subjects, please address your inquiries to the Rodney Hunt Machine Co., Orange 10, Massachusetts, U.S.A.

COPYRIGHT 1949 RODNEY HUNT MACHINE CO.

3 Features designed for LOW COST DYEING



1 *This Dyebox is Fully Enclosed*

— to keep heat and moisture where they belong, in the box; to save fuel, steam, water and dyestuffs; . . . to end dyehouse fog; to increase production per man hour; to give you better work.

2 *This Dyebox is Stainless Steel*

. . . to clean in seconds with a quick rinse; . . . to eliminate boil outs; . . . to end discoloration of fabric; . . . to change from dark to light runs in a few seconds; . . . to give you more runs per day at lower cost.

3 *This Dyebox is Blickman Built*

. . . to be as accessible as an open box with none of the disadvantages; . . . to give dyers every design feature for speedier loading, heating, lacing, unloading and changeover; . . . .to assure trouble free operation for many years.

Write for bulletin 7034

S. BLICKMAN, INC. 104 GREGORY AVE. WEEHAWKEN, N. J.

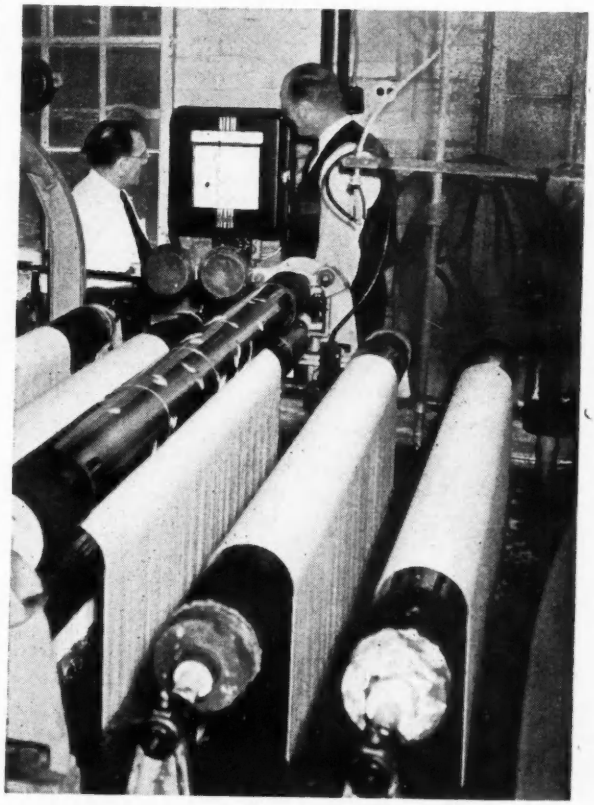
Blickman Built

STAINLESS STEEL TEXTILE EQUIPMENT

Dye Boxes, Linings, Cylinders, Dry Cans, Hoods, Tanks

CARBONIZING at Wyandotte Goes Faster with MICROMAX

A finishing department organized for high quality work at maximum speed is at the Wyandotte Worsted Co., Waterville, Maine.



Their Hunter carbonizing range has two acid tanks, instead of the customary one, and a preliminary hot water bath, enabling them to saturate so rapidly that the rate of output for many weights of cloth is limited mainly by the capacity of the dryer and carbonizer.

Proper acid strength at any speed is automatically held by the Micromax Conductivity Controller, at which the foreman and superintendent are looking. This instrument measures the acid strength of the bath electrically and throttles its automatic acid valve to maintain the desired concentration. It saves time and labor, gives more level color and more even shrink — and furnishes an indisputable process record.

If you would like additional information on Micromax Conductivity Controllers, send for Catalog EN-95.

LEEDS & NORTHRUP COMPANY, 4965 STENTON AVE., PHILA., PA.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS • TELEMETERS • AUTOMATIC CONTROLS • HEAT-TREATING FURNACES

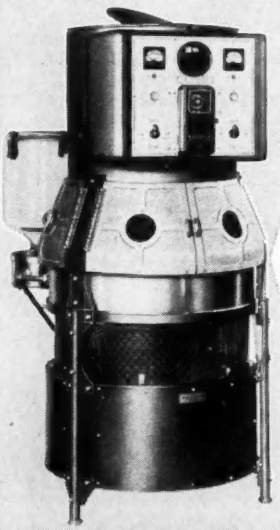
Jrl. Ad N-95-700-0860(1)

COMMONWEALTH
COLOR & CHEMICAL CO.

More than forty years' experience in the manufacture of Chemical Specialties, Dyestuffs and Dyewoods for the Textile and Allied Trades . . .

MAIN OFFICE AND WORKS:
NEVINS, BUTLER and BALTIC STREETS, BROOKLYN 17, N. Y.
PHILADELPHIA • CHICAGO • GLOVERSVILLE • MONTREAL

FADE-OMETER
for accelerated color fading



• Originated and made solely by Atlas. Used all over the world and accepted as the standard color testing machine by the textile industry for over a quarter of a century.

Specimens are rotated around the Atlas Enclosed Violet Carbon Arc—the closest approach to natural sunlight. Temperature automatically controlled. No loss of light intensity of arc during life of machine.

ATLAS ELECTRIC DEVICES CO., 361 W. Superior Street, Chicago, Ill.

ATLAS-OMETERS
WEATHER-OMETER ★ LAUNDER-OMETER ★ FADE-OMETER

QUALITY L/R PERFORMANCE

We EXPORT . . .

DYESTUFFS
OF ALL TYPES
for
TEXTILE
LEATHER
PAPER
and other industries

■

L. L. RONA & CO., INC.
Established 1929

40 Exchange Place
New York 5, N. Y.

Cable Address
"ELRONA"

Hartofol C gives Extra wetting out action

Hartofol C Shows Nearly Twice the Wetting-Out Action Displayed by the Conventional Alkylated Aromatic Sulfonates

This *concentrated* alkylated aromatic sulfonate, available as a liquid gel, is stable to acids, alkalies and hard water. Hartofol C contains very little salt—you pay for the active organic ingredients only!

In addition to its excellent wetting action, Hartofol C shows good detergency (particularly in the presence of alkalies and phosphates) and good sudsing action. It is recommended for use in all textile processing where superior wetting-out, rewetting and scouring action are required.

THE HART PRODUCTS CORPORATION, 1440 Broadway, New York 18, N.Y.

HARTEX PRODUCTS

Rayon Oils & Sizes
Nylon Oils & Sizes
Kier Bleaching Oils
Finishing Oils • Delustrants
Synthetic Detergents
Conditioning Agents
Scrooping Agents
Splashproof Compounds
Leveling Agents
Cationic Softeners
Cotton Warp Dressings
Wetting-Out Agents
Weighting Agents
Mercerizing Penetrants

Hart Products

based on research

PLAITER
PLAITER
REEL
Steam Bleaching
BUFFALO ELECTRO CHEMICAL COMPANY, Inc.
J BOX
ADD to production—SUBTRACT from costs
with bulk shipments and bulk storage of BECCO Hydrogen Peroxide
● Simplicity of handling — rapidity of transfer — has proved Becco bulk shipments and tank storage the most efficient and economical method. Complete information, yours for the asking.
BECCO

FIRST { **in installations! in results!**

BECCO CONTINUOUS BLEACHING UNITS

led the field in 1948 . . . because . . . the Becco J-Box Method has proved highest in quality production and economy

● More Becco continuous bleaching systems were installed by the textile industry during the past year than any other system. The simplicity of Becco continuous bleaching is one reason for this preference. Economy is another. Experience and interest in service complete Becco leadership.

Find out about the "whys" of Becco preference. Ask for a consultation with Becco technical engineers. No obligation whatsoever. Write or call.

BECCO SALES CORPORATION
AGENTS FOR BUFFALO ELECTRO-CHEMICAL COMPANY, INC.
BUFFALO 7, NEW YORK
New York Boston Philadelphia Chicago Charlotte

LOGWOOD

Natural Dyewoods Preserve Tensile Strength of NYLON Fibres

Ask us for Dyeing Formula

•

AMERICAN DYEWOOD CO.
22 East 40th St. New York 16

Canadian Representatives
CANADA COLORS & CHEMICALS, LTD.,
TORONTO & MONTREAL

Aniline Division:
NEW YORK COLOR & CHEMICAL CO.,
BELLEVILLE, N. J.

Branches:
BOSTON PHILADELPHIA CHICAGO

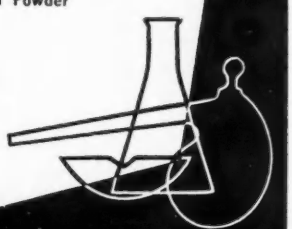
Our 151st Year

ORLEVAT PINK RA

A delicate shade with exceptional qualities, this dye is outstanding for use on Cottons and Rayons by any vat application.

Further information gladly given on request.

SPECIFICATIONS:
Available in Paste and Powder
Light Fastness— GOOD
Chlorine Bleach— VERY GOOD
Peroxide Bleach— FAIRLY GOOD
Washing and Crocking VERY GOOD



ORLECO
ORLEANS COMPANY, INC.
45-24 PEARSON ST. • LONG ISLAND CITY • N. Y.

E *is for Efficiency*

E *is for Economy*

E *is for Easy to Use*

YES
E *is for Exsize*

DESIZE with EXSIZE!*

WRITE FOR FREE BOOKLET

PABST BREWERIES

Copr. 1949
Pabst Brewing Company
Milwaukee, Wisconsin

* Trademark Reg., U. S. Pat. Office

PABST
SALES COMPANY
221 N. La Salle Street
CHICAGO 1, ILLINOIS

QUALITY RICHMOND PRODUCTS

SEND FOR

FREE SAMPLE

OF

SCOURCLEAN-X

THE COMPOUND OF MANY USES

CUTS SCOURING COSTS

- For scouring woolen and worsted yarns.
- For use in Fulling and scouring.
- For use in boiling off cotton preliminary to bleaching.
- For scouring rayon fabrics.
- For removal of grease and dirt from cotton fabrics.
- For pre-scour of cotton and rayon hosiery.
- For scouring oil out of any fabric.

SCOURCLEAN-X

When sending for samples, please state in which use you are interested so that we can give specific instructions with the sample.

Southern Office
617 JOHNSTON BLDG., CHARLOTTE, N. C.
CHARLOTTE 2-1428

RICHMOND OIL, SOAP & CHEMICAL CO., Inc.
1041-43 FRANKFORD AVE., PHILADELPHIA 25, PA.

WILL YOU BE REPRESENTED IN

the

1949 TECHNICAL MANUAL

AND

YEAR BOOK

AMERICAN ASSOCIATION
OF
TEXTILE CHEMISTS AND COLORISTS

VOLUME XXV

•

A full page advertisement in this important technical reference book of the textile industry

costs only

$200.00

Your Advertising Message Placed in

the 1949

TECHNICAL MANUAL

and

YEAR BOOK

will be read by more than 8,000 Chemists, Dyers, Printers, Finishers and others who perform the highly technical operations necessary in bleaching, dyeing, printing, waterproofing, moth-proofing, flameproofing, in addition to all other types of finishing of cotton, wool, silk and synthetic fibers.

These men are essentially students of research and they prove the worth of a product by laboratory test and actual plant performance. Therefore if a good product is brought to their attention, *sales will result,* because these technical men must read this volume to keep in touch with all phases of approved A.A.T.C.C. test methods.

Send Space Reservation to:

HOWES PUBLISHING COMPANY

One Madison Avenue

New York 10, N. Y.

WHERE QUALITY IS FOREMOST

● Acid Acetate

● Direct Formaldehyde

Stocks carried by Dyestuff Distributors in all Textile Centers

YOUNG ANILINE WORKS, Inc.

OFFICE and FACTORY
2731 Boston Street
Baltimore 24, Md.

PATERSON OFFICE
50 East 13th Street
Paterson, N. J.

Are you looking for something special in the line of "DYESTUFFS" or "PENETRANTS" or "SOFTENERS"?

Send your inquiries or samples to be matched to:—

EUGENE VELLNER

MFGR. & IMP.

DYESTUFFS CHEMICAL SPECIALTIES

1209-11-13 N. 4th St. 1210-20 N. Orianna St.
Philadelphia 22, Pa.

"ESTABLISHED 1917"

"Prompt Laboratory Service"

PLURAMINE* S-100%

*Req. U.S. Pat. Off.

Second to none in performance.

A versatile and efficient product, PLURAMINE has proved highly effective in both wool scouring and rayon dyeing. Send for a free sample of PLURAMINE and further information today.

KEARNY MANUFACTURING CO., INC.
Kearny, N. J. Greenville, S. C.

HASTINGS LIGHT FAST VIOLET IRS—(C. I. 1073)

and

HASTINGS LIGHT FAST VIOLET 3RL

Excellent Level Dyeing Properties
Very Good Fastness to Light

Recommended for producing fast shades on Ladies' Dress Goods, Carpet Yarn and Upholstery Materials.

ZINSSER & COMPANY, Inc.
ESTABLISHED 1897
Manufacturing Chemists
HASTINGS-ON-HUDSON NEW YORK

VANCIDES

THEY'RE CHEMICALLY NEW....

Used for Permanent and In-Process Protection against Mildews, Rots, Algae and Bacterial Decomposition.

- NON-TOXIC
- NON-IRRITATING
- LIQUID • EASY TO USE
- STABLE • NON-VOLATILE

SEND FOR DESCRIPTIVE LITERATURE

R. T. VANDERBILT CO., INC.
230 Park Ave.
New York 17, New York

• CLASSIFIED ADVERTISEMENTS •

The rate for "Position Wanted" advertisements in this column is 2 cents a word—with a minimum of 50 cents per insertion. For all other types of advertisements—i.e., help wanted, machinery wanted or for sale—the rate is $7.50 per column inch or less per insertion.

WANTED: Chemist for Textile Lab. Experience in surface active agents and dyeing and finishing desirable. Management ability and experience required. Good educational background essential and some research preferable. Good salary and good future in management capacity of good company. Write Box No. 607.

WANTED: ANALYTICAL CHEMIST — Graduate with major in Analytical Chemistry—supervisory experience desired, to take charge of Control and Technical Service section of Laboratory—large Textile Manufacturer in Metropolitan New York area. Starting salary commensurate with qualifications. Write Box No. 604.

FINISHER WANTED: Nationally known textile organization in South wants a qualified finisher who has had experience on flat goods and underwear crepe. Man should have very sound synthetic fabric background. Please write giving full particulars on experience, background and some indication of salary desired. Write Box No. 599.

WANTED:

Technical Sales Representative for Southern territory by old established chemical manufacturer. An unusual opportunity for a man having following qualifications: At least five years selling experience, actual textile mill experience preferred but not essential. Must have a knowledge of dyeing and finishing. Territory open Virginia, North and South Carolina. Established business. Car furnished. Only experienced men need apply. Salary commensurate with ability. References required, treated confidential.

Write Box No. 568

A reputable starch manufacturer is interested in a technical representative, experienced in dextrins for textile and allied fields. Please reply to Box No. 618, giving full history, and an interview will be arranged.

WANTED—Package yarn dyer. Must have experience on all types of dyestuff. Formulation knowledge essential. Production 50,000 to 75,000 pounds per week. State experience, salary required and references. Southern point. Write Box No. 622.

WANTED: Salesman for Manufacturer of Textile Detergents and Specialties. Must have proven sales ability with broad contacts. Excellent opportunity for the right man. Write Box No. 608.

Want to work for yourself? Novelty flock and screen-printing corporation needs manager to invest $2500 for a one-third interest. Salary. Real opportunity. Write Box No. 615.

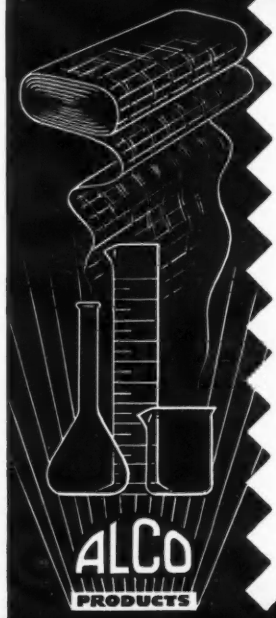
A well established dyeing and finishing plant in New England has an opening for a practical man familiar with the resin treating of rayons, and rayon and wool fabrics. Only a well qualified, educated, and broadminded man capable of handling help and diversified equipment should apply. Excellent opportunity for advancement. Such man must be between 32 and 42 years of age. Write Box No. 619.

EXPERIENCED DYER WANTED—Good position open in medium size Cotton Piece Bleaching & Dyeing Plant near New York City. Must be experienced in dyeing Vat, Napthol, Sulphur and Direct colors. Write Box No. 621 giving full particulars. Replies will be held in the strictest confidence.

POSITION WANTED—Laboratory and plant trained Textile Chemist with Engineering Degree, desires responsible position affording use of broad interests. Familiar with dyeing, printing and chemical processing of wool, nylon and rayon. Write Box No. 623.

Experienced chemist and chemical engineer desires responsible position with company producing chemical products for finishing textiles. New products developed; plant production supervised. Write Box No. 624.

TRY A CLASSIFIED!

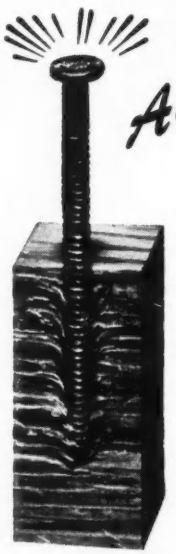


VULCANOLS

OVER
10,000,000
YARDS OF **PILE FABRICS**
were rubberized with
VULCANOL LATEX COMPOUNDS
During 1948

ALCO OIL & CHEMICAL CORPORATION
TRENTON AVE. and WILLIAM ST., PHILADELPHIA 34, PA.

SOUTHERN DISTRIBUTORS
WICA COMPANY INC.
CHARLOTTE, N.C.



Drives like a Nail
Holds like a Screw
Anchorfast Nails

They stay tight...

Anchorfast† Nails won't loosen, rust or corrode out like ordinary nails. That's because of their patented design *and* the fact they are made of Monel.*

Tiny annular grooves around the shank of the nail firmly grip the wood as they are driven in. And the rustless Monel readily withstands any corrosives commonly found in textile processing. Stronger than steel...stiff...easy to drive, Anchorfast Nails will put an end to rickety conveyor trucks, leaky tubs and vats, loosening ceilings and floors.

Send today for FREE testing device and list of distributors.

†Reg. U. S. Pat. Off. Independent Nail & Packing Co.
*Reg. U. S. Pat. Off.

EMBLEM OF SERVICE
INCO TRADE MARK
Monel...for lower maintenance

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK 5, N.Y.

-DIASTAFOR-

TYPE L

ALL-PURPOSE
DE-SIZING AGENT

Standard Brands Incorporated
595 Madison Ave., New York 22, N. Y.

DIASTAFOR
A TRADE MARK OF STANDARD BRANDS INCORPORATED

Nelly Don Suit . . . Avondale Mills Fabric

At Burkart-Schier it is our constant and unfailing effort to develop and produce dyeing and finishing agents that keep pace with the achievements of the textile industry—chemical agents worthy of processing the utilitarian and luxury fabrics of today and tomorrow.

BURKART-SCHIER CHEMICAL CO.

BURK SCHIER CHATTANOOGA, TENNESSEE BURK SCHIER

PENETRANTS • SOFTENERS • SOLUBLE OILS • FINISHES

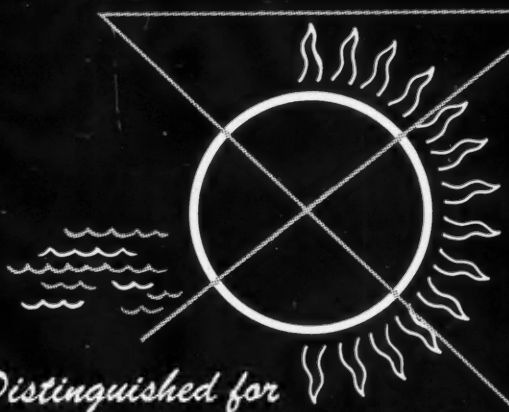
INDEX TO ADVERTISERS

Aktivin Div., The (Heyden Chemical Corp.)	
Alco Oil & Chemical Corp.	XLIII
A'thouse Chemical Co., Inc.	XXX
Amalgamated Chemical Corp.	
American Aniline Products, Inc.	III
American Cyanamid Co. (Ind. Chem. Div.)	Back Cover
American Dyewood Company	XXXVI
American Key Products, Inc.	
Anders Chemical Corp.	XLV
Arkansas Company, Inc.	XXII
Armour & Co.	XXVI
Arnold, Hoffman & Co., Inc.	
Atlantic Chemical Co., Inc.	XXIII
Atlantic Refining Company, The	
Atlas Electric Devices Co.	XXXIV
Barry Chemical Co.	
Becco Sales Corp.	XXXVI
Bick & Co., Inc.	
Blickman, Inc., S.	XXXIII
Burkart-Schier Chemical Co.	XLIV
Butterworth Sons Co., H. W.	
Calco Chemical Division, American Cyanamid Co.	XV
Calgon, Inc.	
Campbell & Co., Inc., John	
Carbic Color & Chemical Co., Inc.	XXVIII
Carbide & Carbon Chemica's Corp.	
Chem-Col Co., Inc.	
Ciba Company, Inc.	
Colgate-Palmolive-Peet Company	
Commonwealth Color & Chemical Co.	XXXIV
Cutting Room Appliances	
Drew & Co., Inc., E. F.	XXI
Du Pont de Nemours & Co., Inc., E. I.	
Ammonia Dept.	
Dyestuffs Division	Front Cover
Electrochemicals Dept.	
Fine Chemicals Division	XI
Emery Industries Inc.	VIII
Exposition for Trades, Inc.	XXIV, XXV
Fancourt & Co., W. F.	X
Geigy Company, Inc.	
General Chemical Division, Allied Chemical & Dye Corp.	
General Dyestuff Corp.	XIII
Girdler Corp., The	
Glycerine Producers' Association	VI
Grinnell Co., Inc.	
Gross & Co., A.	
Gurley, W. & L. E.	
Hardesty Co., W. C.	
Hart Products Corp.	XXXV
Hercules Powder Co.	
Heyden Chemical Corp.	
Hooker Electrochemical Co.	
Houghton & Co., E. F.	
Interchemical Corp., Textile Colors Div.	
International Nickel Co., Inc.	XLIII
International Salt Co., Inc.	XII
Kali Mfg. Co.	
Kearny Manufacturing Company	XL
Kelco Co.	
Koppers Co., Inc.	
Laurel Soap Mfg. Co., Inc.	XX
Leatex Chemical Co.	
Leeds & Northrup Co.	XXXIII

S ●
XLIII
XXX
III
ack Cover
XXXVI
XLV
XXII
XXVI
XXIII
XXXIV
XXXVI
XXXIII
XLIV
XV
XXVIII
XXXIV
XXI
nt Cover
XI
VIII
IV, XXV
X
XIII
VI
XXXV
XLIII
XII
XL
XX
XXXIII
18, 1949

ANDOTEX*

PIGMENT PRINTING COLORS for TEXTILES



New Bright Shades

Distinguished for

EXCELLENT FASTNESS
to SUNLIGHT • WASHING
CROCKING

ANDERS
CHEMICAL CORPORATION
EAST RUTHERFORD, NEW JERSEY

Southern Representative

BLACKMAN-UHLER CO., INC.
Spartanburg, S. C.

*Registered Trade Mark

Cut painting maintenance costs . . . .

with PRUFCOAT

Yes, this modern synthetic resin protective coating has a ten year record now of standing up where ordinary paints fail. On walls, ceilings, floors, pipes, vats, ducts and machinery — in the presence of strong corrosives like caustic soda, sulphuric, nitric and phosphoric acids — *Prufcoat saves you money because it lasts longer, gives better protection.*

But don't take our word for it. Read what a leading textile user reports after many years of painting experience: "Prufcoat on box machine, continuous dye machine, bleach machine, mercerizers, cloth bins and other areas in our bleachery and dye house . . . *time between repaint jobs more than doubled.*"

GET *Proof* BEFORE YOU BUY

Write for the new *Prufcoat Proof Packet.* Contains in one easy-to-file folder reports from outside testing laboratories, actual case histories, and Prufcoat Protecto-graph Plan for analyzing your own painting maintenance costs. *Get your copy today.*

Prufcoat Laboratories, Inc.
63 Main St., Cambridge, Mass.

SAVES More because it PROTECTS More

8 Attractive Colors
Proof against Acids, Alkalies, Oil, Water

INDEX TO ADVERTISERS

Mathieson Chemical Corp.	
Maywood Chemical Works	
Metalsmiths Div., Orange Roller Bearing Co., Inc.	
Monsanto Chemical Co.	XVIII, XIX
Morrison Machine Company	
National Starch Products	XVII
National Aniline Division, Allied Chemical & Dye Corp.	IX
National Tube & Reel Corporation	
Nopco Chemical Co.	XIV
Nova Chemical Corp.	
Nyanza Color & Chemical Co.	
Onyx Oil & Chemical Co.	XXVII
Orleans Co., Inc.	XXXVI
Pabst Sales Company	XXXVII
Perkins & Sons, Inc., B. F.	
Pfizer & Co., Inc., Chas.	
Philadelphia Quartz Company	
Procter & Gamble	
Prufcoat Laboratories, Inc.	XLVI
Refined Products Corp.	VII
Richmond Oil Soap & Chemical Co., Inc.	XXXVII
Riggs & Lombard, Inc.	
Rodney Hunt Machine Co.	XXXI, XXXII
Rohm & Haas Company	XLVIII
Rona & Co., Inc., L. L.	XXXIV
Royce Chemical Co.	
Rumford Chemical Works	
Sandoz Chemical Works, Inc.	
Scholler Bros., Inc.	
Sharples Chemicals Inc.	
Sindar Corp.	
Socony-Vacuum Oil Co., Inc.	Third Cover
Solvay Sales Div., Allied Chemical & Dye Corp.	
Standard Brands, Inc.	XLIII
Standard Corrugated Case Co.	
Standard Chemical Products, Inc.	
Stein Hall & Co., Inc.	
Swift & Company	
Synthron, Inc.	
Tennessee Eastman Corp.	
Truitt Mfg. Co.	
Ultra Chemical Works, Inc.	
Union Carbide & Carbon Corp.	
United Chemical Prod. Corp.	
U. S. Stoneware	
Vanderbilt Co., Inc., R. T.	XLI
Van Vlaanderen Machine Co.	XLVII
Vellner, Eugene	XL
Verduin Machine Corp., John	
Virginia Smelting Co.	V
Wallerstein Co., Inc.	
Warwick Chemical Div., Sun Chemical Corp.	Second Cover
Winthrop-Stearns Inc.	
Wolf & Co., Jacques	
Wyandotte Chemicals Corp.	XVI
Young Co., J. S.	
Young Aniline Works, Inc.	XL
Zinsser & Co., Inc.	XLI
Zurn Co., O. F.	

IT'S NEW

IT'S BETTER

IT'S VAN VLAANDEREN

The INSPECTALL

modern in every feature

Built to a precision and sturdiness not before available.

Exclusive design, one-station group control for easier, faster operation.

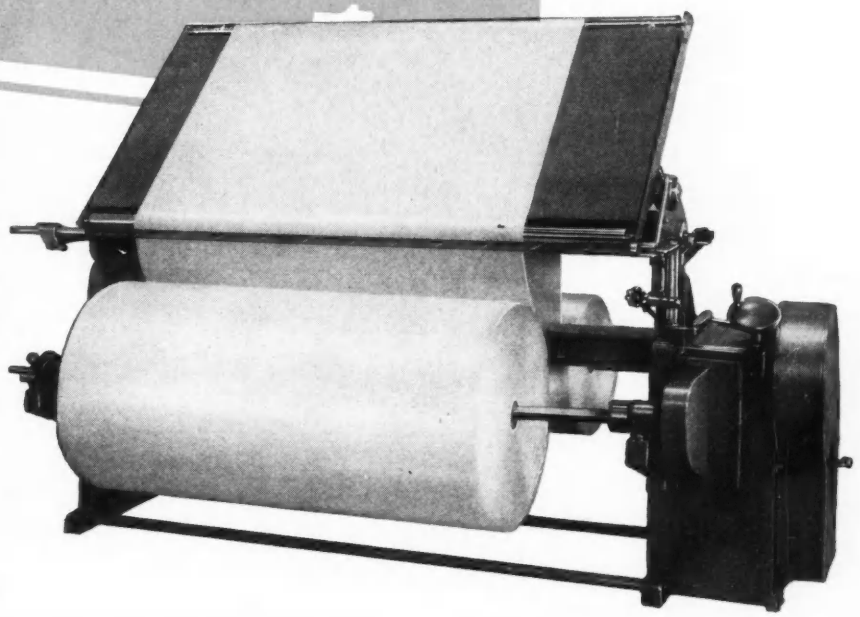
Wide-range, variable speed control at operator's finger tips.

Instantly reversible, one-motion clutch control, hand operated from any examining position.

Let-off brake controlled from front of machine.

Any fabric can be examined face or back because take-ups operate clockwise or counter-clockwise.

Center-bar quills ball-bearing mounted . . . opposite end equipped with new, Van Vlaanderen positive center-bar lock.



This new, superior examining machine will handle rolls of any fabric up to 36" in diameter. Examining board is 36" high in 60" or 72" widths. Special widths available. Machine equipped with precision clock measuring yards and eighths. Attachment available for running tube to tube or shell to tube. Ball bearings throughout...sealed for life. Completely enclosed drive. Oversize disk clutches. Hard chrome-plated guide rolls.

Ask us about this machine.

VAN VLAANDEREN MACHINE COMPANY

370 Straight Street • Paterson 3, New Jersey

World's largest manufacturer of machines for processing modern fabrics

Enzymes Preferred

RHOZYME DX

RHOZYME LA

New Rohm & Haas Desizing Agents Pay Immediate and Cumulative Dividends in Faster Processing.

BUY: Stability at High Temperatures

BUY: Assured Uniform Results

BUY: Maximum Desizing Speed

BUY: Desizing at its Best

CHEMICALS FOR INDUSTRY

For full details, call or write us today.

RHOZYME is a trade-mark, Reg. U. S. Pat. Off.

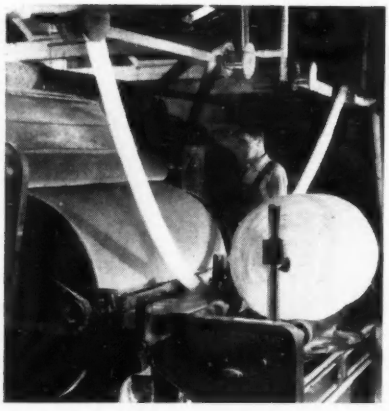
ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

Woolens, Cottons, Synthetics . . .

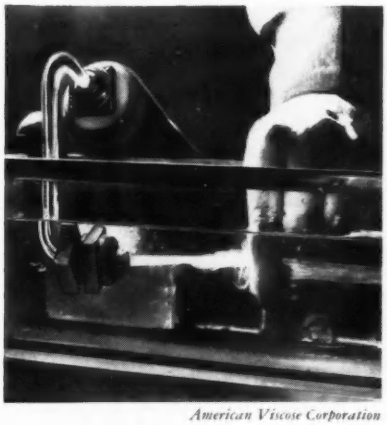
Get Processing Help Here!



• **WORSTEDS** . . . S/V Worstex Oils are available now for both integrated mills and commission combers. They possess good light stability and are easy to scour out of yarns and finished goods.

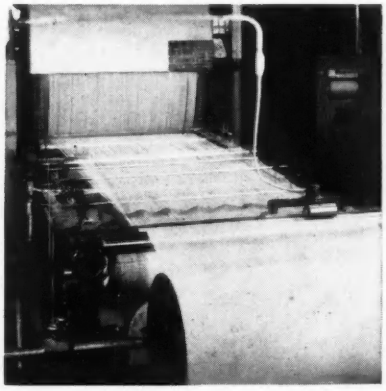
These proved
Socony-Vacuum products
will improve your operations
and your finished fabrics.

They're backed by
skilled technical service
to assist in correct application
and develop new products
where they are needed.

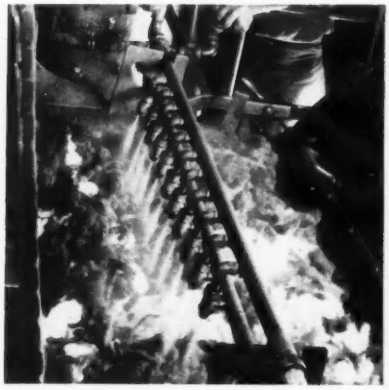


American Viscose Corporation

• **SYNTHETICS** . . . Socony-Vacuum offers a special rayon coning oil that is light-stable and has good lubricating qualities. Another product eliminates encrustation on needles in nylon knitting.



• **COTTONS** . . . the new S/V Weavrex 200 offers an excellent light-stable plasticizer for warp-size compositions. S/V Textile Finishing Oils are superior for finishing and pre-shrinking operations.



• **WOOLENS** . . . Socony-Vacuum now offers new self-scouring oils with high lubricating properties. These new products are in addition to the regular line of S/V Woolrex Oils.

Mohawk Carpet Mills, Inc.

• **CARPETING** . . . Now carpet manufacturers can get special processing oils for their special needs. New S/V Carpetex Oils offer high oxidation and light stability characteristics.

SOCONY-VACUUM
PROCESS PRODUCTS

Process Products
SOCONY-VACUUM

SOCONY-VACUUM OIL COMPANY, INC., 26 Broadway, New York 4, N.Y., and Affiliates: MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

YOU CAN WIN BOTH EYE AND HAND approval with Cyanamid's Finishing Oils. They are extremely effective as softening agents for cotton, rayon and silk, and for hosiery and knitted fabrics. Grades for various textile finishing operations are available for use on the finest as well as for heavy work clothing fabrics.

YOU CAN LEVEL YOUR DYEING *and* dyeing costs with DECERESOL OT Wetting Agents because of their remarkable efficiency in achieving uniform level shades at real savings in time and expense. DECERESOL OT is the fastest wetting, penetrating and dispersing agent available.

YOU CAN SEE DOUBLE benefits — water repellency plus superior resistance to water borne stain — quickly obtained with Cyanamid's PARAMUL* 115 Water Repellent in a wide variety of fabrics . . . cottons, rayons, linens and woolens . . . for both outerwear and equipment purposes.

These Cyanamid Textile Specialties Help You LOWER COSTS AND INCREASE SALEABILITY

The Cyanamid textile specialties described briefly on this page are designed not only to lower your processing costs, but also to improve your product quality and *saleability*.

Investigate the opportunities they offer. Our textile research laboratories and technical staff are ready to co-operate fully with your staff in using these specialties to obtain the most satisfactory results.

Our descriptive booklets, "Textile Specialties" and "DECERESOL Wetting Agents for Textiles" will be mailed to you promptly on request.*

*Reg. U. S. Pat. Off.

AMERICAN Cyanamid COMPANY
INDUSTRIAL CHEMICALS DIVISION, DEPT. E4
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.